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IN THE

Supreme Court of the United States

October Term, 1979

No. 79-1219

R. W. SIMS, Trustee, and
R. W. SIMS, Trust,

Petitioners,

v.

MACK TRUCKS CORP.,

Respondent.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT.

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OCTOBER TERM, 1979

No.

R. W. SIMS, TRUSTEE, and
R. W. SIMS, TRUST,

Petitioners,

v.

MACK TRUCKS CORP.,

Respondent.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT.

INTRODUCTION.

R. W. Sims, Trustee, and R. W. Sims, Trust, petition for a writ of certiorari to review the judgments and opinions of the United States Court of Appeals for the Third Circuit in its Appeals No. 78-2516 and No. 78-2517.

Appeal No. 78-2516 relates to issues of patent validity and infringement, and Appeal No. 78-2517 refers to allowance of attorneys' fees for a successful plaintiff in exceptional patent cases. These two cases present common legal issues and were decided by the Third Circuit Court of Appeals in one Opinion. We file this single petition to seek review of both judgments in accordance with Rule 23.5 of the Rules of this Court.

OPINIONS BELOW.

The Opinion of the Court of Appeals is unreported, and is reprinted in the Appendix to this petition as Appendix Item A1-A18. The Memorandum of Decision and Order of the District Court for the Eastern District of Pennsylvania is reported at 459 F. Supp. 1198 (E. D. Pa., 1978), and is reprinted as Appendix Item A19 to A42.

JURISDICTION.

The judgment of the Court of Appeals was entered on October 16, 1979. This Petition for a Writ of Certiorari is filed within ninety days of that date. Jurisdiction of this Court is based upon 28 U. S. C. § 1254(1).

QUESTIONS PRESENTED.

Whether a patent may be invalidated as "obvious" by applying nonobjective standards of patentability, where those standards are absent in 35 U. S. C. § 103.

Whether inclusive within the 35 U. S. C. § 103 test for invention, is a new, independent and cumulative requirement, "synergism", which must be met in the case of combination mechanical inventions.

STATEMENT OF THE CASE.

Petitioners, R. W. Sims, Trustee, and R. W. Sims, Trust are the owners of U. S. Patent No. 2,859,949, a copy of which appears in this petition as Appendix Item, pp. A43-A48. The petitioners are a small family trust. Sims is a small entrepreneur in Salt Lake City, Utah, who pioneered the Front Discharge Concrete Mixer Truck, a photograph of which appears as Appendix Item A49.

When this new machine first appeared in the art, in 1963, it evoked wide-spread derision on the part of those

"skilled in the art", because of the radical way in which it broke with the prior art. News of this truck soon reached Mack Trucks. To learn more about the truck, and with a view toward negotiating a patent license, Mack dispatched its chief engineer and vice president, Walter F. May, to Salt Lake City in August, 1963. Sims gave the respondent, Mack Trucks, Inc., access to his facilities where the original prototypes of the patented machine were located (1030A).

After thoroughly evaluating Sims's patented truck, Mack's patent counsel concluded that Sims's patent was valid (1036A), but Mack Engineers felt the advance in the art represented by the invention was too revolutionary, and was such a marked departure from the conventional teachings of the art at that time, that it was both impractical and unworkable (1042A, 1145A, 529A). For instance, top engineers at Mack were skeptical of the invention particularly because of the high discharge point (1048A) extending up and over the cab, and additional problems such as weight distribution, which they regarded as "insurmountable" (1072A).

None of these concerns was expressed to Sims by Mack Trucks, who, instead, elected to decline license agreements with Sims, issuing to him a standard rejecting statement.

Mack's original decision was later considered by them to be a mistake, even though the decision was taken by those skilled in the art, since the invention proved neither "inoperative" nor containing "insolvable problems" (1070A, 1072A).

Sims was not discouraged by Mack's rejection, and his subsequent move was to put inexperienced newcomers, free of the prejudices of the art, into the business within a matter of months, and they quickly proved the patented principle at the marketplace. The machine was an unqualified success. Mack Trucks' response was to review

their mistakes and loss of business with alarm, and, to catch up quickly, Mack dispatched one of its engineers to make a copy of the device as it appeared in Anderson, Indiana, and to cover up the copying. The manager of engineering suggested to the vice president of Mack that they destroy the evidence of copying (1139A). Within a matter of months after Mack's decision to proceed, it started promoting the Front Discharge Concrete Mixer truck that ten years earlier it had rejected as "impractical". Sims attempted to restore negotiations when he learned of Mack's changed decision, but without success.

Sims then brought this action for patent infringement in the United States District Court for the Eastern District of Pennsylvania, April 3, 1975, under 28 U. S. C. § 1400(b).

Although originally only charging Mack with patent infringement, the complaint was later amended to include unfair competition as a result of Mack's having gained access to Sims's trade secrets and confidential information. Jurisdiction was here based upon 28 U. S. C. § 1338(b).

In detailed Findings of Fact and Conclusions of Law following a trial held April 3-7 and reopened July 6-7, 1978, during which infringement was not seriously contested, the District Court found Sims's patent to be valid, infringed, and, because of the deliberate nature of the infringement,[1] increased the damages, under 35 U. S. C. § 284. Judgment was entered September 15, 1978.

In an extensive Opinion, District Court Judge Lord made a thorough and clinical analysis of the patented invention in the manner prescribed by the Supreme Court in *Graham v. John Deere Co.*, 383 U. S. 1 (1966), and he applied the *Deere* analysis as it is interpreted by the Third Circuit in their decisions *Systematic Tool & Machine Co. v. Walter Kidde & Co.*, 555 F. 2d 342 (3d Cir., 1977), and *Universal Athletic Sales Co. v. American Gym, Recreational & Athletic Equipment Corp., Inc.*, 546 F. 2d 530 (3d Cir., 1976). Judge Lord analyzed and determined the issue of patentability under 35 U. S. C. § 103 by addressing three factual inquiries: (a) the scope and content of the prior art, (b) the differences between the prior art and the claims of the patent, and (c) the level of ordinary skill in the pertinent art.

1. On eight different occasions, Mack was advised in written form by its internal general counsel, or its patent counsel retained for the purpose of evaluating patents, or patent counsel associated with the other companies, that what it was doing was either an infringement or inducement of infringement of Sims's patent.

The District Court considered all of the evidence, including certain secondary criteria: the duration of the problem, the slavish copying by Mack, the great skepticism expressed by those at the highest engineering levels of Mack. Judge Lord found this evidence to be more reliable than the hired testimony of one of Mack's customers.

In an Opinion filed October 16, 1979, the United States Court of Appeals for the Third Circuit reversed Judge Lord's holdings of validity, mooting the other patent-related issues in the case, including infringement and attorneys' fees.

The Court of Appeals states, A10, A11:

> "The trial court's position is understandable. The 'art to which said subject matter pertains' and the 'person having ordinary skill' in that art, are hardly precise notions. Indeed, our opinions in Systematic Tool & Machine Co. v. Walter Kidde and Co., 555 F. 2d 342 (3d Cir., c.d. 434 US 857 (1977), and Universal Athletic Sales Co. v. American Gym Recreational and Athletic Equipment Corp., 546 F. 2d 530 (3d Cir., 1976), c.d. 430 U. S. 984 (1977), reflect the difficulty the courts have had with the third *Graham* test."

After recognizing that the District Court attempted to comply with language of the Supreme Court opinions in *Sakraida v. AgPro, Inc.*, 425 U. S. 273 (1976) and *Anderson's Black Rock v. Pavement Salvage Co.*, 369 U. S. 57 (1969) in finding as a fact that a "synergistic" effect resulted from the combination of elements in the patented truck, the Court of Appeals proceeded to hold the patent invalid without holding the District Court was clearly erroneous in finding as a fact that the invention exhibited "synergism", or that the art generally at the highest skill levels viewed the invention as "impractical", and were skeptical of its operability at the time of the invention. All such findings must be taken as fully accurate. Rule 52(a), Federal Rules of Civil Procedure.

The Court of Appeals also vacated and remanded Count II of the Unfair Competition claim (Appeal No. 78-2518), which was joined with the patent Count I under 28 U. S. C. 1338(b), on the grounds that it was error for the District Court to dismiss Count II on a Motion for Summary Judgment. No review by this Court of the holding of the Court of Appeals in Appeal No. 78-2518 is sought by the petitioners.

1. REASONS FOR GRANTING THE WRIT AS TO THE FIRST QUESTION.

The history of the patent statute makes it clear that more is required to sustain a valid patent than that it be merely "new". *Hotchkiss v. Greenwood*, 52 U. S. 248 (1850). This historical development of the requirement for greater substance to an invention than mere "newness", was eventually codified in 35 U. S. C. § 103.

There is a confusion in the circuits over the effect of recent decisions of this court on *Graham v. John Deere (supra)* tests of obviousness, first articulated in 1966. This case is exemplary of the confusion. Guidance by this Court is urgently needed if the constitutional mandate for the patent system is to achieve its ends to: "promote the Progress of Science and the useful Arts". Art. 1, § 8, cl. 8, Constitution of the United States.

Congress enacted 35 U. S. C. § 103 in 1952. Fourteen years later, this court, in *Graham v. John Deere (supra)* undertook an authoritative interpretation of 35 U. S. C. § 103, holding that the criteria in a determination of patent validity must become evident from an orderly series of inquiries, in the following language, 383 U. S. 1, 14:

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved."

This appeal involves the third factual inquiry, namely, the resolution of the level of ordinary skill in the pertinent art. But how is the relevant art defined? By what talisman does one recognize the person of ordinary skill in the art? Here is where courts rely on expert testimony for guidance, and here is where the qualifications of the expert are so critical.

Judge Lord, in "adopting the standard of a designer of self-transit concrete mixers", declined to give weight to the testimony of one of defendant's "experts", who was not a designer in the relevant art, who never tested the patented construction, who never purchased one, who could not even comprehend the advantages of the system, and who had no perception even of the problems of the art, much less the solutions. Appendix Item, pp. A50, A52. Yet, this was held to be reversible error. Is there any wonder why there is confusion over 35 U. S. C. § 103?

There is a still further question: Can a Court of Appeals adopt a new standard of invention by "viewing the question of validity from the eyes of Sakraida", and then go on to substitute its own notion of ordinary skill in the pertinent art, unaided by relevant testimony and without finding the District Court to be clearly erroneous? By reaching its conclusions solely on the basis of a subjective hunch gathered from treatment of other inventions in other Supreme Court decisions, namely, *Sakraida v. AgPro (supra)* and *Anderson's Black Rock (supra)*, is the Court carrying out the mandate of objective analysis of inventions described as follows in *Deere*, 383 U. S. 1, 14:

> "We believe that strict observance of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act."

The Unintended Effect of Blackrock and Sakraida on Deere's Objective Standards of Patentability.

The Third Circuit Court of Appeals' decisions reflect the confusion found throughout all of the circuits in the manner in which the courts are applying and following recent Supreme Court decisions and their modifying effect, if any, on *Graham v. John Deere (supra)* and 35 U. S. C. § 103. Some courts declare that there has not been any change. *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F. 2d 963 (7th Cir., 1979). Other courts ascribe to these decisions a new standard of patentability. *Herschensohn v. Hoffman*, 592 F. 2d 893 (9th Cir., 1979), cert. den. 203 USPQ 720 (1979).

The Third Circuit, equivocating on that issue, has rendered a series of decisions which are confused and contradictory from decision to decision, within this economically important circuit. Initially, in *Universal Athletic Sales Co. v. American Gym Recreational and Athletic Equipment Corp. (supra)*, the Third Circuit adhered to the *Deere* analysis, requiring that the standard of invention be set at the level of ordinary skill in the pertinent art, and the Court mandated that witnesses be competent and demonstrate their credentials in the pertinent art at the time the invention was made. From that vantage point, the witness could then declare what was expected from the ordinarily skilled in the pertinent art and at the time the invention was made.

Universal Athletic Sales Co. v. American Gym Recreational and Athletic Equipment Corp. (supra) case was decided after *Anderson's Black Rock v. Pavement Salvage Co. (supra)*, and this Court refused a Petition for Writ of Certiorari No. 76-1233, cert. den. 197 USPQ 783 (1978). Less than a year later, the Third Circuit took an about-face in *Systematic Tool Machine Co. v. Walter Kidde & Co. (supra):* the Third Circuit interpreted the "level of ordinary skill in the pertinent art" to be adducible through a person having no recognizable knowledge of the relevant art, but having demonstrated just general skills sufficient to give invalidating testimony, apparently attempting to comply with recent Supreme Court decisions.

It is not necessary to emphasize the irreconcilability of these two Third Circuit decisions, or the confusion

which the Third Circuit Court is experiencing in correctly interpreting the Supreme Court decisions. The Third Circuit expressed candidly its confused holdings, stating, A10, A11:

> "The trial court's position is understandable. The 'art to which the said subject matter pertains' and the 'person having ordinary skill' in that art are hardly precise notions. Indeed, our opinions in *Systematic Tool & Machine Co. v. Walter Kidde & Co.*, 555 F. 2d 342 (3d Cir.), cert. denied, 434 U. S. 857 (1977), and *Universal Athletic Sales Co. v. American Gym, Recreational & Athletic Equipment Corp.*, 546 F. 2d 530 (3d Cir., 1976), cert. denied, 430 U. S. 984 (1977) reflect the difficulty that courts have had with the third *Graham* test."

The statutory intent of 35 U. S. C. § 103 was to impart a sense of objectivity into the standard of "obviousness". This Court's decision in *Sakraida v. AgPro (supra)* is now being cited by the Third Circuit and other circuits as a return to the subjective views in which each court is called upon to psyche itself into a view of the barn-cleaning invention of Sakraida and then, in that frame of mind, asks itself, "How should we view the invention before us?" That is not the contemplated operation of 35 U. S. C. § 103, and it is not the intent of *Sakraida v. AgPro (supra)* to return the patent law to judicial "hunches" cut loose from the objective standards of 35 U. S. C. § 103. It is up to this court to mandate a return to a disciplined (admittedly more difficult) intellectual approach, to what is "obvious".

The Third Circuit Court illustrates the problem as it concluded its review of Judge Lord's Opinion with this language, Appendix pp. 11, 12:

> "Looking at this record through Sakraida's eyes leads us to conclude that the Willard patent was obvious to a mechanic familiar with the design of concrete mixers as well as to a reasonable man. We therefore hold that the application of the Graham criteria compels a finding of obviousness."

In the trilogy of patent cases decided concurrently by this Court in 1966, the 35 U. S. C. § 103 tests laid down in *Deere* were also applied in *Calmar v. Cook Chemical*, 383 U. S. 1 (1966) and in *U. S. v. Adams*, 383 U. S. 39 (1966). In *Adams*, the patent was held valid in a factual setting similar to the one at bar. Yet, perhaps because it has been over a decade since this Court has last held a patent valid, the lower courts have focused on *Sakraida* and have ignored *Adams* as if it were overruled.

Before World War II, Adams worked in his home on the development of a water-activated battery, and after successfully developing the battery, he promptly filed a patent application on his invention. He brought the battery to the attention of the Army and Navy, and was rebuffed by leading scientists at the Army Signal Corps and the National Bureau of Standards who expressed doubts about the workability of his battery. Pressure of the war effort, however, eventually caused the Government to take another look at the Adams battery in 1943, and by 1956, after years of successful use, the Government lauded the advantages of the Adams water-activated battery. Adams was never notified by the Government as to its changed attitude about his battery, or about its use of his battery, until 1950 when his claim for compensation was denied.

After finding that the prior art did not anticipate the Adams battery, the Court stated, 383 U. S. 39, 47:

> "We conclude the Adams battery was also non-obvious. As we have seen, the operating character-

istics of the Adams battery have been shown to have been unexpected and to have far surpassed then-existing batteries. Despite the fact that each of the elements of the Adams battery was well-known in the prior art, to combine them as did Adams required that a person reasonably skilled in the prior art must ignore . . . (certain factors). These long-accepted factors, when taken together, would, we believe, deter any investigation into such a combination as is used by Adams. * * * *

Nor are these the only factors bearing on the question of obviousness. *We have seen that at the time Adams perfected his invention noted experts expressed disbelief in it.* Several of these same experts subsequently recognized the significance of the Adams invention, some even patenting improvements on the same system." (emphasis added).

The question is: Is *Adams* still good law? If it is, the lower courts should be instructed to consider all the relevant evidence bearing on patentability, including the so-called secondary considerations and the *ante litem motem* views of experts. If it is no longer good law, this Court should clearly so instruct the circuits.

Had the Third Circuit Court judges looked at all the evidence, they would have seen a record almost identical with that of *Adams (supra).* The experts from Mack and the art generally, just as in *Adams,* at the time of his invention, not only deemed the invention "unobvious", but declared that it was so different in form, function and result that it was "impractical" (1041A, 1048A, 1145A). The Mack engineers in 1963 (1048A) listed four different reasons why Sims's device could never "work": (a) drum shape, (b) drum height, (c) weight distribution, (d) drum position. But the circuit judges now say these are

"obvious" and taught by the prior art.[2] Mack believed the new design was fraught with difficulties of such magnitude that Mack did not even want to become involved! Mack's engineering reports, discovered during the course of the litigation, tell eloquently that this invention, far from being obvious to those of ordinary skill, was viewed by those of the highest skill in the art with great skepticism to the extent that they predicted failure. It was only because of the endurance of Sims, who had grit enough to go ahead despite conventional wisdom, that the invention was successful.

The fact that Mack made an exact copy of the invention and urged the report to be destroyed (1139A) is also compelling secondary evidence ignored by the Circuit Court.

The fact that Mack was advised in eight different legal opinions by its own and other patent counsel, was ignored by the Third Circuit Court.

Altogether, Mack was advised directly or indirectly by (a) its internal general counsel, D. S. Bowie; (b) its patent counsel which is retained for the purpose of evaluating patents (Brumbaugh, Graves, Donohue & Raymond), and (c) patent counsel associated with other companies (Rexnord), that what it was doing and proposing to do was (i) an infringement; (ii) an inducement to infringe, or (iii) a contributory infringement of the patent in suit, 1036A (Gardner, of Brumbaugh, Graves, Donohue & Raymond); 1067A (Rexnord); 1102A (Brumbaugh, of Brumbaugh, Graves, Donohue & Raymond); 1121A (Bowie, general counsel for Mack Trucks); 1108A (Granville Brumbaugh, of Brumbaugh, Graves, Donohue & Ray-

2. The allegedly anticipative prior art used by the circuit judges was referenced in Sims' patent as illustrations of problems overcome by the patented principle. A45. Thus, the Patent Office's view of the invention was also swept aside and the "problem" art was held anticipative!

mond); 1415A (Byron T. Gardner, Brumbaugh, Graves, Donohue & Raymond); 1029A (Bowie, general counsel, Mack Trucks); 1106A (Bowie, general counsel, Brumbaugh, Graves, Donohue & Raymond).

The fact is that Sims's weak financial condition was used by Mack as a reason for proceeding. But that, also was ignored.

2. REASONS FOR GRANTING THE WRIT AS TO THE SECOND QUESTION.

The decision of the Third Circuit concerns a widespread expression of the problem of dealing with patentability. Standards have become confused and divisive among the circuits.

Although the statutory test for patentability makes no reference to "synergism", this has become commonly accepted as a new requirement for patentability among several circuits, but by no means all. Some circuits declare there is a new and added requirement for patentability in addition to the statutory requirement as well as the requirements elucidated in *Graham v. John Deere.* This new position is taken in these circuits: *Parker v. Motorola,* 524 F. 2d 518 (5th Cir., 1975); *Phillips Industries, Inc. v. State Stove Mfg. Co.,* 522 F. 2d 1137 (6th Cir., 1975); *Reinke Mfg., Inc. v. Sidney Mfg. Corp.,* 201 USPQ 345 (8th Cir., 1979); *Deere & Co. v. Heston Corp.,* 201 USPQ 721 (9th Cir., 1979); *Satco, Inc. v. Transequip, Inc.,* 594 F. 2d 1318 (9th Cir., 1979), c.d. 48 USLW 3013 (79-50, July 24, 1979), *Plastic Container Corp. v. Continental Plastics of Oklahoma, Inc.,* 203 USPQ 27 (10th Cir., 1979). But the contrary view is held in *Republic Industries, Inc. v. Schlage Lock Co. (supra).*

Every mechanical invention must consist of old parts and elements. Just as the universe is made up of a finite number of elements, so the mechanical arts are made up of a finite and fixed number of components: screws, bolts, levers, cams, gears, wheels, etc. This is to be expected and, indeed, progress of science and the useful arts depends on these parts being assembled in different ways to achieve new and extraordinary results. *U. S. v. Adams (supra).* Thermodynamically, it would be impossible for these to add up to a result greater than their individual

contributions, but they can function and interrelate together in different ways to produce new and different results. This is the sense of the recent Supreme Court decisions, not the hunt for an esoteric, hidden meaning which relieves the courts from following the more difficult but intellectually demanding analysis of *Deere*. Invalidating patents on formulistic grounds without considering any of the other criteria of invention as appears under either "primary" or "secondary" evidence, or of adhering to the statutory test, is always the tempting, easy way out.

It is time to put the patentability tests back on the track by elucidating for the lower courts the meaning of this Court's recent decisions.

The Economic Interests of Small Inventors and Entrepreneurs Must Be Protected Through the Patent System.

It has long been the tradition of the Supreme Court, to assist the friendless and protect the weak. Those compelling factors apply today when the private entrepreneur and the individual inventor are abandoning the patent system in droves. 1285A. This case presents the ideal fact situation for the Court to reaffirm the position of the individual inventor who, after having made an invention proclaimed by the industry to be revolutionary, later finds the United States courts engaging in hindsight analyses. It was not within the genius of Mack Trucks to develop this invention; they followed the route of the copyist. Likewise, it is not within the genius of the Circuit Court judges to fly in the face of those who were actually in the art, were baffled by its problems, scoffed at the invention, and who are now, in the brilliance of hindsight, to say that an invention was obvious.

Two things prompted Mack to challenge the patent:

(1) Sims was deemed by Mack on the basis of their research to be a paltry, unfunded threat (1188A), "on the ropes", financially, as they so colorfully put it.

(2) The patent had only two years to run, so the downside risk was minimal (1245A).

The contempt of large corporate infringers for small patentees like Sims, is typically what the record shows. The small inventor needs some protection; if not from the courts, then from where?

It would be simpler but deeply unfair, to consign small inventors to second class privilege. Unfair still is to cause small inventors to rely on patents subject to ambiguous, formulistic, all-encompassing language effective, to break those patents. It would be better for this Supreme Court to deem all future mechanical patents to be unworthy of patenting so that conscientious patent lawyers as well as the Patent Office could deny this area as worthy of issuing patents. This would much better serve the cause of inventors and the small entrepreneurs who would otherwise look to the patent system for protection against their rapacious competitors.

If *U. S. v. Adams (supra)*, the companion case to *Graham*, is no longer the law of the land, small inventors and entrepreneurs such as Sims, should be able to look to this Court for a clear statement to that effect.

This case is the appropriate vehicle to make known this Court's authoritative interpretations of 35 U. S. C. § 103.

CONCLUSION.

For these reasons, a Writ of Certiorari should issue to review the judgment and opinion of the Third Circuit Court of Appeals.

Respectfully submitted,

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APPENDIX TO:

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APPENDIX

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UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

Nos. 78-2516/17/18/19/20

R. W. SIMS, Trustee and R. W. SIMS TRUST,
Appellants in Nos. 78-2517/18/19/20
v.
MACK TRUCK CORPORATION Mack Trucks, Inc.,
Appellant in No. 78-2516

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA
(D.C. Civil Nos. 75-0985 and 76-2070)

Argued August 8, 1979
Before: ALDISERT and WEIS, *Circuit Judges*,
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Opinion filed October 16, 1979

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OPINION OF THE COURT

WEIS, *Circuit Judge.*

Changing the discharge point of a concrete mixer from the rear to the front of the truck results in definite advantages but does not raze the roadblock of nonobviousness required for patentability. We therefore reverse a district court finding of patent validity. We find jurisdiction also to review a companion count alleging conversion of trade secrets related to the construction of concrete mixers. Because that claim contains disputed matters of fact, we vacate a summary judgment entered in favor of the defendant.

By virtue of an assignment in 1965, plaintiffs R. W. Sims, Trustee, and the R. W. Sims Trust hold U.S. Patent No. 2,859,949 issued in 1958 to J. Jack Willard for a front-discharge concrete mixer. The pending action is based on allegations of infringement by defendant and an additional count of unfair competition. The district court entered summary judgment in favor of the defendant on the unfair competition count on February 9, 1978.[1]

1. For reasons not here relevant, plaintiffs' unfair competition claim appears in *two* separate lawsuits. In Civil No. 75-985, the case that we are entertaining on appeal, the unfair competition

After a bench trial, the district judge upheld the patent, found that the defendant had infringed, and awarded double damages to the plaintiff, but denied attorneys' fees. The defendant appeals the infringement issues under 28 U.S.C. §1292(a)(4). Plaintiffs cross-appeal the denial of the attorneys' fees and seek review of the summary judgment on the unfair competition claim.

The Willard patent describes a concrete mixer mounted on a truck chassis and used to deliver premixed concrete to a construction site. The more common truck in general use unloads the concrete from the rear. The Willard design, however, reverses the mixing drum so that its narrow discharge end is at the front rather than the rear of the truck. The drum is inclined upward toward the front so that the pour end is above the driver's cab. A portable chute is used to move the concrete from the drum to the particular spot where the construction is in progress.

The great advantage of the front-end discharge is that it allows the truck to be driven directly to the place where the concrete is to be poured without the necessity of backing into the area, as is required with vehicles of conventional configuration. Thus, the dangers of backing to the unloading site are eliminated, and by maneuvering the truck the driver can assist in the actual pouring of the concrete. In a modification added by

claim is Count II of a two-count complaint, the first count charging defendant with patent infringement. In Civil No. 76-2070, the unfair competition claim comprises the only count of the complaint. By opinion dated February 8, 1978 and orders dated February 9, 1978 and April 18, 1978, Judge Lord dismissed this claim as found in *both* complaints. *See* Sims v. Mack Trucks, Inc., 444 F.Supp 1277 (E.D. Pa. 1978). Civil No. 75-985 then proceeded to trial on the patent infringement issue. After the trial, plaintiffs appealed from both dismissals, with the appeals filed October 13, 1978. No. 78-2518 is Sims's appeal as to Civil No. 75-985. Nos. 78-2519/20 are the appeals from Civil No. 76-2070. Clearly, the appeals from Civil No. 76-2070 (Nos. 78-2519/20) are infirm because plaintiffs failed to comply with the 30-day time limit of Fed. R. App. P. 4.

plaintiff Sims, the driver may sit in the cab and shift the chute by means of hydraulic controls.

Willard first applied for the patent on July 18, 1955, but it was not granted until 1958. On November 14, 1955, Evan S. Pritchard filed an application for a front-discharge mixer of similar construction. In 1958 plaintiff Sims also considered applying but decided against it when he learned of Willard's patent. At first, the Willard truck met with little commercial success, and in 1965 it was assigned to the Sims Trust. Thereafter, plaintiffs successfully marketed licenses to a number of manufacturers.

Defendant considered the possibility of manufacturing front-end discharge trucks in 1963 and met with Sims at that time to discuss a possible licensing arrangement. Although Sims was not at that time the holder of the Willard patent, Mack's interest in him was aroused by his development of one of the first technically and commercially feasible front-discharge mixers. After some study, however, defendant decided not to enter the market. In late 1972, defendant conducted a new market survey and concluded that it should reevaluate its position. The following year, defendant modified an existing chassis to accommodate a front-discharge mixer and in the next four years sold a number of chassis, some with the mixer attached. Although the record does not establish when those transactions took place, it does reveal that defendant exhibited a front-discharge mixer in two trade shows before the patent expired in 1975.

In a detailed and scholarly opinion,[2] the district judge concluded that the defendant had failed to prove obviousness. Recognizing that the front-discharge mixer concept was a combination of known components, the court nevertheless determined that because of the combination's "synergistic" effect, the patent

2. The opinion is reported at 459 F.Supp. 1198 (E.D. Pa. 1978).

survived the required close judicial scrutiny. In response to defendant's contention that there was no infringement because the mixer drums mounted atop the Mack truck chassis were purchased from a licensee, the court ruled that Mack had waived the license defense by not pleading it in its answer. Double damages were determined to be appropriate because the defendant willfully infringed, but since the defenses of invalidity and noninfringement were colorable and nonfrivolous, counsel fees were denied the plaintiffs.

VALIDITY

As its principal defense, Mack contends that the Willard patent was invalid on the ground of obviousness, 35 U.S.C. §103. We turn to that issue first.

The courts have long adhered to the principle that patents are not to be issued for every device effecting some improvement, but only for those that may be called "inventions." The problem of separating the two was recognized early by Jefferson, whose duties as Secretary of State included administration of the patent system. It was his belief that the limited monopoly sanctioned by the Constitution should be construed narrowly: "Only inventions and discoveries which furthered human knowledge, and were new and useful, justified the special inducement of a limited private monopoly." *Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966) (discussing Jefferson's views).

In *Hotchkiss v. Greenwood*, 52 U.S. 248 (1850), the Supreme Court, in one of its first expressions of this sentiment, said that if "that degree of skill and ingenuity which constitute essential elements of every invention" were absent, the improvement would be only the "work of the skilful mechanic, not that of the inventor." *Id.* at 267. Attempts over the next hundred years, however, were unsuccessful in producing a workable definition of invention, and in the 1952 Patent Act, Congress attempted to resolve the issue by enacting §103, which reads in pertinent part:

> A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the inyention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Some years passed before the Court had occasion to review this standard, but it finally did so in *Graham v. John Deere Co.*, *supra*, articulating the three factual inquiries that underlie a determination of obviousness:

> Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. *Id.* at 17.

In addition, the Court indicated that secondary considerations might have relevancy in determining obviousness and listed such matters as the commercial success of the device, long felt but unresolved needs, and the failure of others. *Id.* But these factors "cannot, by themselves, support a finding of nonobviousness if it is otherwise established that a patent's disclosures are obvious in light of the prior art." *Tokyo Shibaura Electric Co. v. Zenith Radio Corp.*, 548 F.2d 88, 94-95 (3d Cir. 1977).

The patent bar read *Graham* as adopting a more liberal view toward patentability, and as moving away from the invention concept treated in *Hotchkiss v. Greenwood*, *supra*, and *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147

(1950). In two later cases, however, *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 61 (1969), and *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 279 (1976), the Court reiterated that constitutional limitations, which find expression in the invention concept, restrict patentability. The Court also had some special words about patents utilizing a combination of elements known in the prior art:

> 'Courts should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements. . . . A patent for a combination which only unites old elements with no change in their functions . . . obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men. . . .' *Sakraida v. Ag Pro, Inc*, *supra* at 281, *quoting Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp., supra at* 152-53.[3]

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3. For an interesting contrast of views on the *Sakraida* case and its underlying philosophy, *compare* Sears, Combination Patents and 35 U.S.C. §103, 1977 DET. C. L. REV. 83 (generally favoring the strict patentability approach) *with* Mintz, The Standard of Patentability in the United States—Another Point of View, 1977 DET. C. L. REV. 755 *and* Judge Rich's article, Laying the Ghost of the "Invention" Requirement, 1 AM. PAT. L. A. Q. J. 26 (1972) (taking the liberal view).

The controversy has by no means subsided. In Roanwell Corp. v. Plantronics, Inc., 429 U.S. 1004 (1976), Justice White, while acknowledging that the Court's "crowded docket does not permit review of every case where error has been committed," *id.* at 1009, dissented together with Justice Brennan from the denial of certiorari in a case where the court of appeals affirmed a district court ruling of nonobviousness in a combination patent. The dissenters noted that each element in the combination had previously been used to perform the same function it now performed in respondent's device, and that, therefore, the patent was obvious under the reasoning of *Black Rock* and *Sakraida*.

Thus, the courts, in determining obviousness in a combination patent, must undertake the tripartite *Graham* inquiry without losing sight of the necessity to determine whether the device performs its function in an innovative fashion.

There was little dispute among the parties as to the scope of prior art. The mixing drum was constructed with interior helical blades. Rotating the drum in one direction caused the concrete to be mixed, counterrotation pushed the concrete through the discharge opening. This type of drum made it possible to have a high pouring point since the unloading did not depend on gravity. Patents for this drum design had been obtained before 1955.[4] The prior art also included open and closed chutes to direct the flow of concrete from the drum discharge to the delivery point.[5]

The most important reference in the prior art was the Payne patent,[6] describing a mixing truck that discharged concrete at the front of a cylindrical drum by tilting the drum forward and emptying it by gravity. The driver controlled the unloading by operating a lever that caused the rear of the drum to be raised. The concrete would slide out through a trough beneath the truck cab into a portable distributing cart, which was then wheeled to the desired delivery point. The Payne plan of discharging into a cart and thence to the construction point differs from the Willard's discharge into a chute to the construction point, but, as the district judge noted, that difference does not necessarily make the Willard subject matter nonobvious.

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4. U.S. Patent No. 2,661,935 issued on December 8, 1953 to Carl L. Willard. U.S. Patent No. 2,672,327 issued on March 16, 1954 to John F. Oury. U.S. Patent Reissue 23,320 reissued on January 2, 1951 to Carl L. Willard and J. Jack Willard.

5. U.S. Patent No. 2,045,532 issued on June 23, 1936 to John C. Merwin and Charles F. Ball. *See also* the Oury patent, *supra* note 4.

6. U.S. Patent No. 1,509,055 issued on September 16, 1924 to Charles F. Payne.

The prior art discloses, therefore, that the three main components of the Willard patent, a mixing drum with a high discharge opening, use of a chute for pouring to the construction point, and unloading at the front of the truck, were all matters of record in the patent office before 1955. The components, that is the drum and the chute, performed the same functions in the same way as they had previously, and the concept of pouring to the front with the attendant advantages was the same as that previously disclosed.

In essence, the Willard concept did nothing more than flip the discharge end of the drum from the rear to the front of the truck. That it offered advantages in delivery of the concrete to the construction point, such as reduction of outside help in positioning the chute, is clear. But the gains in maneuverability and elimination of backing the truck, which are characteristics of the front-discharge mode, were also present in the Payne patent.

In these circumstances, the third *Graham* inquiry — obviousness to a person having ordinary skill in the pertinent art — presents some problems. In the usual case, validity will hinge on the answer to this question. In the context of combination patents, however, the Supreme Court, in *Sakraida v. Ag Pro, Inc., supra*, teaches that the answer will be affected by the fact that the device is a combination of components known to the prior art.

The *Sakraida* patent, a barn-cleaning system, was a combination of elements causing a cascade of water to flow across a barn floor with a striking cleansing action. In entering a judgment of validity, the court of appeals had found the plaintiff's evidence "a full and lucid view of . . . the prior art" showing an "inventive 'breakthrough,' " as contrasted with defendant's "meager," "paltry factual presentation." *Ag Pro, Inc. v. Sakraida*, 474 F.2d 167, 170 (5th Cir. 1973). The defendant's single trial witness, a person who ran a

dairy, testified that certain elements of the plaintiff's patent — paved sloped floors with downhill drains and raised stalls — were known to the prior art. In addition, three affidavits were submitted, including one by the defendant himself, stating that there was nothing novel or patentable in plaintiff's device. Plaintiff, on the other hand, "painted a convincing picture of a nonobvious advance" through "vivid documentary evidence" and the testimony of an agricultural engineer which presented "the only technical analysis of the prior art." *Id.*

Despite the court of appeals's meticulous review of the evidence and adherence to the *Graham* standard, the Supreme Court, in a brief and unanimous opinion, reversed. In the Court's view, the device was the work of a skillful mechanic rather than that of an inventor, and amounted to no more than an "assembly of old elements [that] would be obvious to any person skilled in the art of mechanical application." 425 U.S. at 282. *Sakraida* thus indicates that in some circumstances, the standard of a "person having ordinary skill in the art to which the said subject matter pertains" may not be a demanding one.

This nuance did not escape the able district judge in the case *sub judice*. Although he determined that the "hypothetical person skilled in the pertinent art was the designer of self-transit concrete mixing trucks," 459 F.Supp. at 1211, the judge also concluded that a "reasonable person" would not find the combination obvious on the basis of the prior art. *Id.* at 1214. In the judge's view, however, the latter standard would not be in conformance with the *Graham* formula.

The trial court's position is understandable. The "art to which the said subject matter pertains" and the "person having ordinary skill" in that art are hardly precise notions. Indeed, our opinions in *Systematic Tool & Machine Co. v. Walter Kidde & Co.*, 555 F.2d 342 (3d Cir.), *cert. denied*, 434 U.S. 857 (1977), and

Universal Athletic Sales Co. v. American Gym, Recreational & Athletic Equipment Corp., 546 F.2d 530 (3d Cir. 1976), *cert. denied*, 430 U.S. 984 (1977), reflect the difficulty that courts have had with the third *Graham* test.

In *Systematic Tool*, we held that a tomato slicer would have been obvious to a mechanic familiar with the design of food slicers and that an engineer with ordinary mechanical or design skills — not specifically those of designing food slicers — possessed the requisite skill in the art. In *Universal Athletic Sales*, however, we determined that the pertinent art was the design of body exercising apparatus rather than mechanical engineering or weight lifting. In that case, the device under cons deration was designed to eliminate the problems inherent in the "chest press" exercise, a highly specialized art. *Cf. Hadco Products, Inc. v. Walter Kidde & Co.*, 462 F.2d 1265, 1271-72 (3d Cir.), *cert. denied*, 409 U.S. 1023 (1972) (a pre-*Sakraida* case asserting that the standard of obviousness is tied "to a worker of ordinary skill in the art" rather than the "ordinary observer" in a design patent case).

The district court, in adopting the standard of a designer of self-transit concrete mixers, declined to give controlling weight to the testimony of some of defendant's experts, none of whom were mixer designers. In our view, however, this standard is unduly restrictive when the combination is merely a rearrangement of components disclosed in the prior art. *Sakraida* seems to make suspect any standard that is more restrictive than that of a mechanic familiar with the design of concrete mixers. Accordingly, although it is arguable that defendant's evidence was adequate even under the more restrictive standard, the defense did produce ample testimony that one familiar with the design of concrete mixers would have found the Willard patent obvious. Looking at this record through *Sakraida* eyes leads us to conclude that the Willard patent was obvious to a mechanic familiar with the design of concrete mixers as well as to a reasonable man. We therefore hold that the application of the *Graham* criteria compels a finding of obviousness.

In addition to the required *Graham* analysis, the district court also found that the Willard patent produced a marked synergistic effect in that concrete was discharged in view of the driver in the cab and, less significantly, that there was a better weight distribution than in conventional mixers. As the court put it, "[t]he Willard patent deploys these components in a fashion that produces an entirely new result, not merely a 'more striking' version of an old one." 459 F.Supp. at 1215. This finding was no doubt an attempt to comply with language in Supreme Court opinions suggesting that combination patents, to be valid, must produce a synergistic effect — one which " 'results in an effect greater than the sum of the several effects taken separately.' " *Sakraida v. Ag Pro, Inc., supra* at 282, *quoting Anderson's-Black Rock, Inc. v. Pavement Salvage Co., supra* at 61.

In view of our holding that the patent at issue fails to meet the test for obviousness set down by Graham, we need not rule on the question whether a finding of synergism is a precondition to validity in all such cases.[7] We do note, however, that the Willard design is no more striking an improvement than those found to be inadequate for a combination patent in *Sakraida* or in *Black Rock*. In the latter case, the combination of a radiant heat burner and other elements on one chassis of a road paving machine, though a convenient device fulfilling a useful function and addressing a long felt need, was not an invention by the obvious-nonobvious standard.

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7. The courts of appeals have split on the question. *See* Plastic Container Corp. v. Continental Plastics, Inc., — F.2d —, — (No. 77-1753 10th Cir. Aug. 8, 1979); Satco, Inc. v. Transequip, Inc., 594 F.2d 1318, 1322 (9th Cir. 1979), *petition for cert. filed*, 48 U.S.L.W. 3013 (No. 79-50 July 24, 1979), and cases cited therein.

The Supreme Court precedents binding on us require that we declare the Willard patent invalid and, accordingly, we do not meet the question of infringement and denial of attorneys' fees.*

JURISDICTION OVER THE UNFAIR COMPETITION CLAIMS

Defendant's appeal from the district court ruling on validity and infringement is grounded on 28 U.S.C. §1292(a)(4), which confers jurisdiction on the courts of appeals in all "[j]udgments in civil actions for patent infringement which are final except for accounting." Plaintiffs have cross-appealed the order of the district court granting summary judgment on Count II of the complaint, which alleges conversion of trade secrets. Defendant contends we have no jurisdiction to consider that cross-appeal since no final judgment has been entered in the district court in the patent phase of the litigation, and our review under §1292(a)(4) is limited to the issues of patentability and infringement.

Our research and that of counsel has not revealed any controlling case law. In two cases ruling on requests for injunctions for infringement, *Paeco, Inc. v. Applied Moldings, Inc.*, 562 F.2d 870 (3d Cir. 1977), and *W.L. Gore & Associates, Inc. v. Carlisle Corp.*, 529 F.2d 614 (3d Cir. 1976), we held that appeals under another interlocutory provision, 28 U.S.C. §1292(a)(1), were limited to the issues bearing on the denial of injunctive relief and did not extend to other claims or issues determined by the judgment. It has also been held, however, that an appeal under §1292(a)(4) will not lie for any claim unless there have been final orders (or compliance with Fed. R. Civ. P. 54(b) entered in the district court on all other issues joined with those of

8. Our silence on the waiver of the license defense in the circumstance of this case should not be construed as agreement with the ruling of the district court.

patent validity and infringement. See *Bergman v. Aluminum Lock Shingle Corp.*, 237 F.2d 386, 387 (9th Cir. 1956), followed in *American Cyanamid Corp. v. Lincoln Laboratories, Inc.*, 403 F.2d 486, 488 (7th Cir. 1968), and cited in *W.L. Gore & Associates, Inc. v. Carlisle Corp.*, *supra* at 617. *But see* 16 C. WRIGHT, A. MILLER, E. COOPER & E. GRESSMAN, FEDERAL PRACTICE AND PROCEDURE §3928 (1977) (criticizing that view).

One case that has considered the question of reviewing an unfair competition claim in a §1292(a)(4) appeal is *Saf-Gard Products, Inc. v. Service Parts, Inc.*, 532 F.2d 1266 (9th Cir.), *cert. denied*, 429 U.S. 896 (1976). There, the court of appeals affirmed the district court's findings of validity and infringement but declined to consider the unfair competition claims because they "may become moot by reason of the district court's determination as to damages for infringement in the accounting phase of the trial." *Id.* at 1273. Thus, the court in that instance apparently chose as a matter of discretion not to review the companion claim.

Our situation, however, is quite different. Because the patent is invalid, there will be no accounting procedure in the district court and thus at this point the patent case *is* concluded, absent a grant of certiorari by the Supreme Court. We perceive no reason, therefore, to remand the case to the district court for entry of a dispositive order on its docket and then require the plaintiff to take an appeal at that time. The contingency that existed in *Saf-Gard* is not present here, and we believe that sound judicial administration dictates that we reach the merits of the unfair competition claim at this point.

This result is in accord with the views of leading commentators who assert that although the scope of the appeal under §1292(a)(4) should ordinarily be confined to the issues of validity and infringement, the

court should entertain any other matter necessary for "reasons of efficient relations between the court of appeals and the district court." 16 C. WRIGHT, A. MILLER, E. COOPER & E. GRESSMAN, *supra* §3928, at 132. That we have the power to do so is clear. As the authors of MOORE'S FEDERAL PRACTICE state:

> Once a timely appeal is taken from an order made appealable by statute, the power of a court of appeals should be plenary to the extent that it chooses to exercise it. A court should not close its eyes to what is plainly there. . . . [O]nce a case is lawfully before a court of appeals, it does not lack power to do what plainly ought to be done. 9 MOORE'S FEDERAL PRACTICE §110.25[1], at 273 (2d ed. 1975).

We conclude that because of the unique procedural posture in this case we should, and will, review the appeal from the partial summary judgment entered against the plaintiff on Count II of his complaint.

THE UNFAIR COMPETITION CLAIMS

In Count II of its complaint, the plaintiffs alleged that the defendant improperly obtained trade secrets under the guise of negotiating for a license and used this information to produce its own mixer some years later; disparaged the products of plaintiffs' licensees; and illegally tied the sales of mixer barrels to those of the chassis. The district court considered these allegations to state a single claim sounding in the tort of unfair competition and granted the defendant's motion for summary judgment. The court read Pennsylvania law as limiting that cause of action to a defendant's competitors, and ruled the plaintiffs did not hold that status. Suspecting that the tort of stealing trade secrets might be conceptually different from that of unfair

competition, the court nevertheless declined to consider the issue in view of the parties' failure to brief or argue it. *See* 444 F.Supp. at 1281-83.[9]

The plaintiffs contend that the inclusion of the trade secrets claim in the summary judgment was error. They assert ownership of the trade secrets, disputing the defendant's contention that the owner was Travel Batcher Corporation, a company controlled by the plaintiffs. We agree that a factual dispute has been established and it cannot be resolved on motion for summary judgment.

Rule 56(c) of the Federal Rules of Civil Procedure provides, in part, that a motion for summary judgment shall be granted "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." The plaintiffs' affidavit demonstrates that the dispute over the ownership of these trade secrets is genuine. The only issue is whether plaintiffs' ownership, if established, would entitle them to maintain the claim for theft.

Unfair competition and regulation of trade secrets are matters of state law and for the reasons stated in the district court's opinion, 444 F.Supp. at 1281, we agree that Pennsylvania law controls the disposition of this claim. Pennsylvania seemingly would follow the Restatement of Torts in determining trade secrets issues. *See College Watercolor Group, Inc. v. William H. Newbauer, Inc.*, 468 Pa. 103, 112-14, 360 A.2d 200, 204-05 (1976); *Van Products Co. v. General Welding*

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9. In a later suit filed by plaintiffs and The Travel Batcher Corp., the district court analyzed Pennsylvania law including the case of Van Products Co. v. General Welding and Fabricating Co., 419 Pa. 248, 213 A.2d 769 (1965), and concluded that conversion of trade secrets was not conceptually distinct from unfair competition and only competitors could recover. Sims v. Mack Trucks, Inc., 463 F.Supp. 1068 (E.D. Pa. 1979).

and Fabr cating Co., 419 Pa. 248, 258, 213 A.2d 769, 775 (1965). Comment b of §757 of the Restatement includes as a trade secret any compilation of information used in one's business that gives one an opportunity to obtain an advantage over competitors who do not know or use it — the information need not be patentable. Comment c of the same section states that one who has a trade secret may be harmed by its disclosure to others, as well as by the use of his secret in competition with him. A trade secret is vendible, and mere disclosure may reduce its value.

Restatement §759 provides that one who for the purpose of advancing a rival business interest procures information — not limited to trade secrets — may be liable for the use of that information. In determining such liability, the courts pose the question of *how* the defendant obtained the information, rather than simply relying upon a breach of a confidential or special relationship. *See Smith v. Dravo Corp.*, 203 F.2d 369, 374 (7th Cir. 1953) (applying Pennsylvania law). Direct competition is not essential to tort liability since the opposing interests of persons in a bargaining situtation, such as buyer and seller, are also rival interests. RESTATEMENT OF TORTS §759, Comment d (1939). Thus, requiring the parties to be direct business competitors before recognizing a cause of action construes the Restatement too narrowly.

Given this background, we cannot say at this point that the plaintiffs' claim is meritless, and since their affidavits assert ownership, summary judgment should not have been awarded. We think a sufficiently protectible interest has been alleged that requires further examination on remand.

Accordingly, the judgment of the district court is reversed insofar as it found patent validity and infringement and as to that count, judgment will be entered for the defendant. The district court's order entering summary judgment on the unfair competition claim

will be vacated and the matter remanded for further proceedings consistent with this opinion.

A True Copy:

Teste:

Clerk of the United States Court of Appeals for the Third District

R. W. SIMS, Trustee, and R. W. Sims Trust

v.

MACK TRUCKS, INC.

Civ. A. No. 75-985.

United States District Court, E. D. Pennsylvania.

Sept. 15, 1978.

Action was brought for patent infringement. The District Court, Joseph S. Lord, III, Chief Judge, held that: (1) patent No. 2,859,949 covering front-discharging self-transit concrete mixer was valid and was infringed under the doctrine of equivalence by concrete mixer depicted by defendant in its promotional film and brochures; (2) plaintiff would be awarded increased damages on grounds that defendant's infringement was knowing, deliberate, wanton and willful, and (3) plaintiff would not be awarded attorney fees, since defenses of patent invalidity and noninfringement raised at trial were colorable and nonfrivolous.

Order accordingly.

1. Patents ⇐36(2)

As consequence of statutory presumption that patents are valid, defendants who raise defense of patent invalidity in infringement cases ordinarily bear the burden of demonstrating invalidity by clear and convincing proof. 35 U.S.C.A. § 282.

2. Patents ⇐312(4)

In patent infringement action, defendant would not bear burden of demonstrating clear and convincing proof of patent invalidity but would be required to show by only a small amount more than the preponderance of evidence that patent in suit was invalid, since file history of patent in question revealed no citation or other evidence of consideration of a prior patent which disclosed prior art highly pertinent to the art patented by the patent in question. 35 U.S.C.A. § 282.

3. Evidence ⇐571(6)

In action to recover for infringement of patent relating to front-discharging self-transit concrete mixers, trial court would give only very limited weight to testimony of defendant's expert witness who was qualified primarily as a user of and an expert in concrete and who never designed self-transit mixers or any comparable devices.

4. Evidence ⇐570

In patent infringement action, trial court would give little weight to testimony of defendant's experts who were interested by virtue of both their status as executives of the defendant and their personal involvement in the litigation.

5. Patents ⇐36.2(4)

Where commercial acceptance is attributable to properties other than those disclosed in patent, such commercial acceptance does not demonstrate even secondarily nonobviousness. 35 U.S.C.A. § 103.

6. Patents ⇐328(2)

Patent No. 2,859,949 covering front-discharging self-transit concrete mixer was valid and was infringed under the doctrine of equivalence by concrete mixer depicted by defendant in its promotional film and brochure; however, defendant's manufacture and sale of chassis for front-discharging self-transit concrete mixers did not make defendant liable as a direct infringer. 35 U.S.C.A. §§ 103, 271.

7. Patents ⇐310(7¾)

Noninfringement as a result of licensing is a defense to an infringement claim, and therefore, it must be pleaded by defendant or it will be waived. 35 U.S.C.A. § 282; Fed.Rules Civ.Proc. rule 8(c), 28 U.S.C.A.

8. Patents ⇐259(3)

In each instance in which chassis built by defendant was used in the construction of a front-discharging self-transit concrete mixer, the sale of such chassis by defendant constituted an inducement of infringement of patent covering front-discharging self-transit concrete mixers. 35 U.S.C.A. § 271(b).

9. Patents ⇐259(3)

A "contributory infringer" is one who sells a component of a patented device with the conjunctive requirement that the contributory infringer know that component is made especially for an infringing use and that component is not a staple article of commerce suitable for any substantial noninfringing use.

See publication Words and Phrases for other judicial constructions and definitions.

10. Patents ⇐312(8)

In action to recover for infringement of patent covering front-discharging self-transit concrete mixer, plaintiff failed to sustain burden of proving that chassis manufactured by defendant was not a staple article of commerce suitable for any substantial noninfringing use, and therefore, plaintiff could not recover from defendant for contributory infringement. 35 U.S.C.A. § 271(c).

11. Patents ⇐319(3)

An infringer's consultation of patent counsel, solicitation of a validity opinion and receipt of an opinion of invalidity do not by themselves preclude a finding of wanton and willful infringement justifying increased damages. 35 U.S.C.A. § 284.

12. Patents ⇐319(3)

In action to recover for infringement of patent covering front-discharging self-tran-

sit concrete mixer, plaintiff would be awarded increased damages on ground that defendant's infringement was knowing, deliberate, wanton and willful, since evidence established that defendant did not rely upon letter from counsel advising that patent in suit was invalid when it intentionally infringed and induced infringement of patent. 35 U.S.C.A. § 284.

13. Patents ⇐325.11(3)

In action to recover damages for infringement of patent covering front-discharging self-transit concrete mixer, in which plaintiff recovered damages for knowing, deliberate, wanton and willful infringement, plaintiff would not be awarded attorney fees, since defenses of patent invalidity and noninfringement raised at trial were colorable and nonfrivolous. 35 U.S.C.A. § 285.

John A. Young, Fort Wayne, Ind., Stanley B. Kita, Philadelphia, Pa., John A. Young, Fort Wayne, Ind., for plaintiff.

Jon A. Baughman, Philadelphia, Pa., Bernard & Brown, Washington, D.C., for defendant.

OPINION

JOSEPH S. LORD, III, Chief Judge.

Plaintiffs, a family trust and its trustee, brought suits for patent infringement and for unfair competition based on defendant's manufacture and sale of chassis for front-discharge concrete mixers. We granted defendant's motion for summary judgment as to the unfair competition claim but denied the motion as to the patent claim, 444 F.Supp. 1277 (E.D.Pa.1978). Three issues were tried before me: the validity of the patent in suit under 35 U.S.C. § 103; infringement of it by the defendant under 35 U.S.C. § 271; and, if there was infringement, whether the willfulness of defendant's conduct calls for increased damages under 35 U.S.C. § 284. I now make the following findings of fact and conclusions of law:

FINDINGS OF FACT

I. Background:

1. The plaintiff R. W. Sims is an individual who is the sole trustee of the plaintiff R. W. Sims Trust, a trust organized under Utah law whose beneficiaries are R. W. Sims, his wife and their four children.

2. The defendant is a corporation which is incorporated in Pennsylvania, has its principal place of business in Pennsylvania and is engaged in the manufacture of trucks.

3. The patent in suit is United States Patent No. 2,859,949, issued on November 11, 1958, to J. Jack Willard for a Forward Discharging Transit Concrete Mixer (the "Willard patent") (Fig. 1).

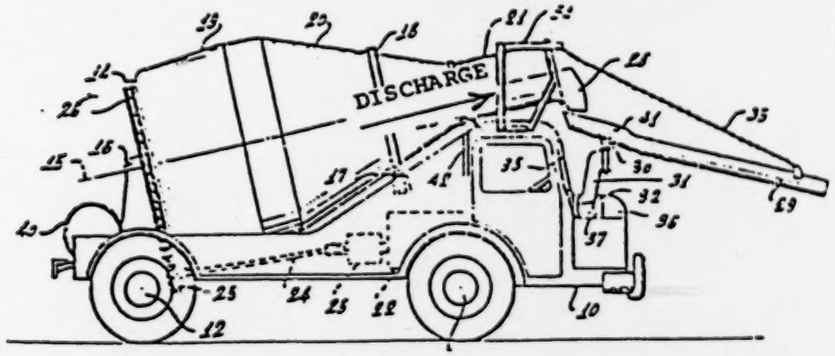

Fig. 1

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4. A self-transit concrete mixer is a truck with facilities for receiving, mixing and transporting concrete and for discharging concrete at the site where it is to be used. The construction disclosed in the Willard patent is a fully operative front-discharge self-transit concrete mixer, although its operation could be and later was improved by altering that structure.

5. R. W. Sims in 1958 designed and constructed a front-discharge self-transit concrete mixer and sought to have it patented. When his counsel's patent search disclosed the Willard patent and he learned that his construction would infringe the Willard patent, he entered into negotiations with the patentee.

6. In order to continue to make, use and sell front-discharge mixers, Sims entered into a licensing agreement under the Willard patent. In 1965 Willard assigned to the plaintiff trust all rights under the Willard patent.

II. Validity:

A. The Prior Art

7. In 1955 the prior art of self-transit concrete mixing trucks included a rear-discharge mixer, with a drum on a fixed longitudinal axis inclined upwardly toward the rear. This construction is disclosed in, *inter alia*, United States Patent No. 2,661,935, issued on December 8, 1953, to Carl L. Willard, and United States Patent No. 2,672,327, issued on March 16, 1954, to John F. Oury (Fig. 2).

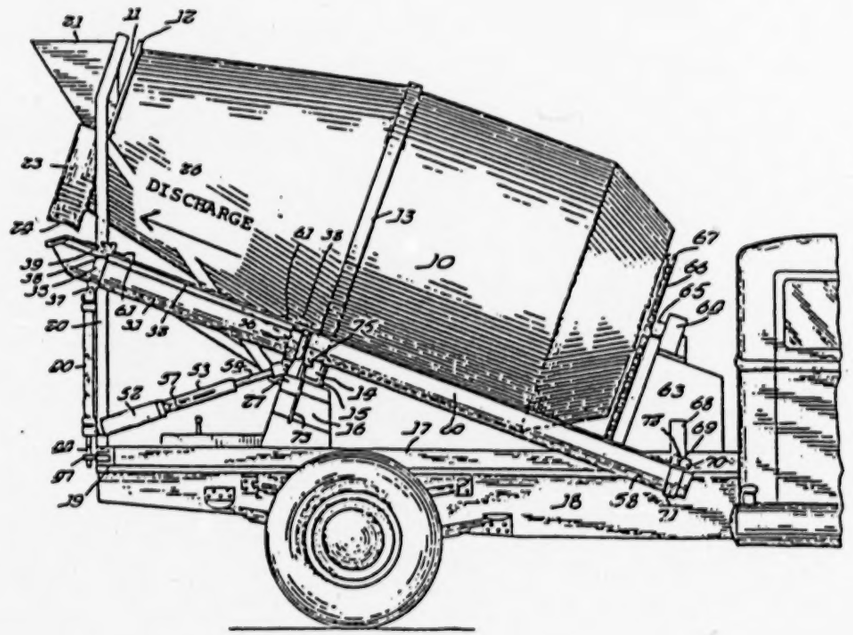

Fig. 2

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In these trucks the concrete mixing drums are filled with concrete through their rear ends. The drums are rotated in one direction to mix the concrete and in the opposite direction to discharge the concrete through their rear ends.

8. The prior art in 1955 included a separate attachment to a tractor for mixing, transporting and discharging concrete, disclosed in United States Patent No. 2,706,623, issued on April 19, 1955, to Fred J. Styes. In this construction, the concrete is carried in a small mixing drum forward of the tractor connected to it by sidebars. These bars can swing from their point of attachment either to extend the mixing drum downward and forward of the tractor for loading or to lift it up, like a car of a ferris wheel, for discharge.

9. The prior art in 1955 included a self-transit concrete mixer which could be loaded from the front of the mixer, disclosed in United States Patent No. 2,327,473, issued on August 24, 1943, to Harold A. Wagner and Gustave H. Wagner. In this construction, a loading device is attached to the truck chassis by arms. When those arms are extended forward, the loading hopper is on the ground and can be loaded. Those arms can be rotated, lifting the hopper over the cab, again like a car of a ferris wheel. When the hopper is over the cab it can be emptied into the front part of the drum. This truck provides for the discharge of concrete through the rear end.

10. The prior art in 1955 included a chute to control the discharge of concrete from self-transit mixers, disclosed in United States Patent No. 2,045,532, issued on June 23, 1936, to John C. Merwin and Charles F. Ball, and in the Oury patent. The Oury cylindrical chute is attached to the side of the mixer for transport and can easily be placed at the discharge end of a mixing truck and positioned so as to control the flow of concrete from the drum to the area where the concrete is to be distributed, while the Merwin chute is a similarly placed open trough.

11. The prior art in 1955 included mechanisms for driving mixing drums on self-transit concrete mixers disclosed in United States Patent No. 2,729,435, issued on January 3, 1956, to Henry C. Harbers and Edward D. Sharpe. These mechanisms are illustrated in the patent by use with a rear-discharge mixer.

12. The prior art mentioned in ¶¶ 6–10, with the exception of the Merwin chute, composed the references cited by the United States Patent Office in the Willard patent file. Of these, only the patent issued to Styes discloses a concrete mixer which discharges concrete in front of the vehicle. The construction in this patent was limited in its use to tractors using small amounts of concrete, however, and was not adaptable to full-sized self-transit concrete mixing trucks.

13. The prior art in 1955 included a concrete mixing drum with helical blades, disclosed in United States Patent Reissue 23,320, reissued on January 2, 1951, to Carl L. Willard and J. Jack Willard. This device is a concrete mixing drum in the shape of a cylinder with a frustum at each end constructed so that the material in the drum is mixed by rotating the drum in one direction and discharged out of one end of the drum by rotating the drum in the other direction.

14. The prior art in 1955 included a rear-discharge concrete mixing truck with a mixing drum which has a non-inclined horizontal axis but which can be inclined in the rear to effect higher discharge, disclosed in United States Patent No. 1,998,749, issued on April 23, 1935, to Charles F. Ball. In this construction the mixing drum did not have a fixed longitudinal axis but rather one which could be varied in order to meet the needs of the discharge on a particular job. This patent was not cited as prior art in the Willard patent.

15. The prior art in 1955 included a concrete mixing truck which discharged concrete out of the front of a cylindrical drum by tilting the drum forwardly and allowing gravity to induce the discharge, disclosed in United States Patent No. 1,509,055, issued on September 16, 1924, to Charles Payne (Fig. 3).

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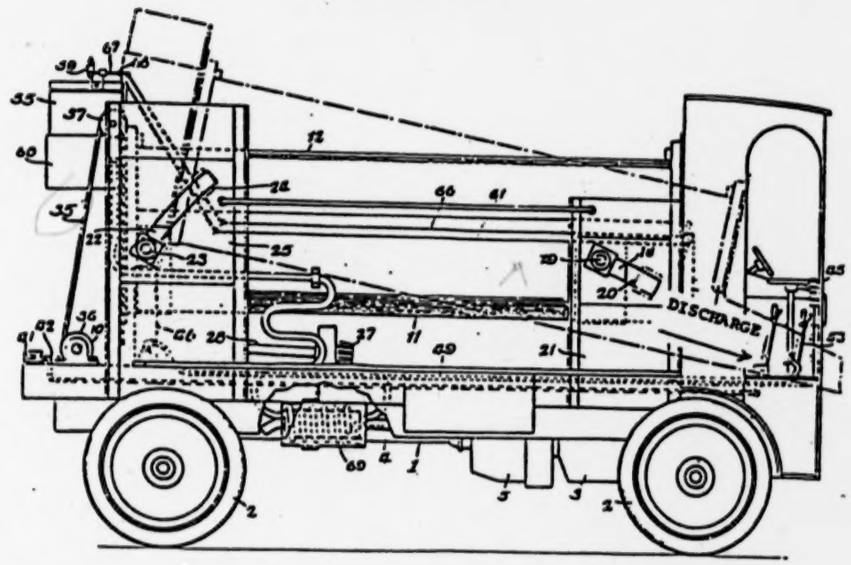

Fig. 3

The construction disclosed in this patent appears to be the only one providing for front discharge of concrete in a full-sized self-transit mixer before the Willard patent. In this construction, the concrete is loaded into the cylindrical drum through the top of the cylindrical drum, which has a non-inclined horizontal axis during the loading and mixing of the concrete. At the time of discharge, the driver in the cab at the forward end of the vehicle operates a lever which causes the rear end of the drum to be raised and the forward end to be lowered, giving the drum an axis upwardly inclined from front to rear and inducing the concrete to slide out the front of the drum, with discharge under the driver's position. The Payne patent provides for discharge into a portable concrete distributing cart, which in turn would be used to apply the concrete. The Payne patent, which was not cited by the United States Patent Office as prior art in the Willard patent, was among the prior art most pertinent to the Willard patent because it embodies a front-discharge self-transit mixer.

16. The prior art included in 1955 self-transit mixers with non-inclined horizontal mixing drums which discharged concrete out the rear ends of the mixing drums by tilting them, much as the Payne patent did in effecting front discharge.

17. Most of the self-transit concrete mixers in use in 1955 were rear-discharge self-transit mixers with drums of fixed axis upwardly inclined toward the rear or discharging end. These trucks had certain disadvantages in their operations. Among these were the slowness of discharging, in that the truck had to be backed up to the point of discharge and the driver often had to leave the cab in order to ascertain where the concrete would be discharged, so that at least two persons were needed to operate the truck when the point of discharge was being varied slightly, one person to drive the truck and the other or others to observe the point of discharge and instruct the driver; and the high rate of accidents caused by the driver's inability to observe the discharging end and chute.

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18. There were also in use in 1955 rear-discharge mixers of the type disclosed in the Ball patent which inclined the mixing drum in the rear in order to achieve a high point of discharge, which is advantageous in some situations. These mixers shared the disadvantages of rear-discharge self-transit mixing trucks generally. There were also in use in the 1950's "dumper" self-transit mixers like the construction disclosed in the Payne patent, but they were subject to frequent breakdowns and like rear-discharge mixers with fixed drums required at least two persons, a driver and someone stationed on the ground to operate the separate concrete distributor.

19. The rear-discharge mixers which dominated the self-transit mixer market in the 1950's had their weight concentrated over the rear wheels. This concentration made it difficult and dangerous to discharge concrete into an excavation or on soft ground because the heaviest part of the vehicle had to be near the point of discharge.

B. Differences Between Prior Art and the Patent In Suit

20. The Willard construction provides for front discharge of concrete by inclining the bowl upward toward the front, rather than rearward as is the case both in the rear-discharge mixer with a drum of fixed longitudinal axis and in the "dumper" mixer of the type disclosed in the Payne patent.

21. The mixing drum employed in the Willard patent is of the type disclosed in United States Patent Reissue 23,320, permitting mixing and discharge by the rotation and counterrotation of helical blades. The shape of the drum is generally similar to those disclosed in the prior art, *i. e.*, a cylinder and a frustum with the cylinder further from the loading and discharging end, but in the Willard construction there is adjacent to the frustum a drum extension, a relatively narrow cylindrical section at the discharging end. This drum extension is somewhat analogous to the narrowed part of the drum at the discharging end of the cylindrical drum in the Payne patent. At the discharging end of the drum extension in the Willard patent there is a discharging chute, similar to those revealed in the prior art, which is supported by a bracket and chain. Like the chute disclosed by the Oury patent, this chute is removed from its discharging position and carried on the side of the unit during transit.

22. As a result of providing for discharge at the front end of the unit, inclining the drum forwardly, providing a drum extension which is elongated and narrowed relative to the frustum adjacent to it and placing a chute extending forward at the point of discharge, the Willard patent permits the point of discharge from the chute to be in the view of the driver of the unit when he is in the cab. Because front discharge is achieved by having the drum discharge above the cab, rather than under it as in the Payne patent, the advantage of high discharge is retained in the Willard construction.

23. The construction disclosed in the Willard patent has a number of advantages over the rear-discharge mixer which dominated the self-transit mixer market as of 1955. Most of these stem from the driver's ability to observe the discharge from the cab and therefore to be able to see the point where concrete is being discharged without leaving the cab. As a result of this visibility, the driver of a Willard unit is able to vary the point of discharge while remaining in the cab. Furthermore, the driver is able to drive forward to the proper point of discharge and bring the point of discharge to it in the first instance without getting out of his cab or relying on other persons' instructions, as is often necessary in rear-discharge mixers where the driver must back into the point of discharge. In addition, the danger that the driver would drive onto a surface which was unable to support the truck or into construction forms without observing the nature of the surface is reduced significantly by the Willard unit. Furthermore, this construction potentially would reduce the high rate of accidents in rear-discharge mixers on account of the full visibility to the driver of the discharging chute and discharge operation.

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24. By extending the mixing drum roughly from the rear axle to the forward axle, the Willard construction distributes the weight between the axles more evenly than the rear-discharge mixers in use at the time of its invention.

25. Because the Willard construction distributes the weight of the vehicle more evenly between the front and rear axles and because of the forwardly protruding discharging chute, the Willard vehicle is able to discharge near soft ground or an excavation more safely than a rear-discharge mixer.

26. Relative to the dumper type of self-transit mixer disclosed in the Payne patent, the Willard construction has three types of advantages. First, by incorporating the mixing drum with helical blades which had been developed since the Payne patent and had come to dominate the market by 1955, it incorporates all the advantages of those drums over the more cumbersome and more fragile cylindrical drums and tilting mechanisms of the dumper type of mixer. In addition, the Willard construction permits the driver to see the point of discharge of concrete onto the place where it is being used, with all the advantages which accrue from that visibility, whereas in the Payne patent it is claimed only that the driver is able to observe the discharge into a separate unit used for concrete distribution. The Payne patent does not disclose whether discharge to the point of application itself can be observed by the driver, but its failure to claim that advantage and the placement of the discharging end of the drum relative to the cab make it appear that there would not be such visibility. Finally, the Willard construction maintains the advantages of high discharge, which is impossible in a dumper-type self-transit mixer.

C. Level of Skill In the Relevant Art

27. There was little evidence presented at trial as to the general level of ordinary skill possessed by those involved in the design of self-transit mixing trucks. The plaintiffs presented evidence through the testimony of R. W. Sims and that of an expert, Robert W. Fay, suggesting that designers of such vehicles were unable to solve the problem of delivering concrete efficiently, quickly and safely and that progress in the industry was through 1955 very slow. The art was characterized by several witnesses as an active one during the early 1950's in spite of the fact that there were no striking advances made. Most of the evidence which related to the level of skill in the art of self-transit mixer design, however, involved only the narrow conclusion that persons of ordinary skill in this art would or would not have perceived the design of the Willard construction as an obvious improvement.

D. Testimony as to Obviousness

28. Irving M. Fogel, offered by the defendant as a witness on the obviousness of the patent in suit, was in 1955 a civil engineer in the construction business who was a user of concrete. He did not state that he had any familiarity with the art of designing self-transit mixers, other than as a purchaser and repairman of such vehicles, either in 1955 or at any other time.

29. Robert W. Stieg, the defendant's chief engineer in charge of special purpose vehicles, was from 1940 until 1968 employed by a company which manufactured and sold self-transit mixer chassis and was involved in the design of self-transit concrete mixer chassis during those years. He stated that it would have been obvious in 1950 to him, as a designer of such vehicles, to replace the cylindrical drum in the dumper disclosed by the Payne patent with a drum of fixed axis of the type used in rear-discharge mixers at that time. This testimony suggests that the result of that replacement would be the Willard construction. In his discussion of the Payne patent, however, Stieg evidenced an unfamiliarity with that construction as disclosed in the patent. Furthermore, he testified that he was unfamiliar with the problems in the art of self-transit mixer design in the 1950's which the Willard patent addressed and solved.

30. Richard B. Essex, a civil engineer who was from 1933 until 1977 a principal in a company which used self-transit concrete mixers, testified that in 1954 it would have

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been obvious to him as a user of self-transit mixers to replace the cylindrical mixing drum on the "dumper" disclosed by the Payne patent with a modern drum of fixed axis, adding a drum extension and chute at the discharging end of the drum, that is, that the Willard construction would have been obvious on the basis of the prior art. Essex was in 1954 familiar with the types of self-transit concrete mixers in use, and he supervised at that time the assembly of self-transit mixers (that is, mounting of mixing drums onto chassis). However, he was not engaged in the design of self-transit mixers then or at any other time (except for consulting as to the design of vehicles, which he did not explain), was not familiar with their design and was unfamiliar with the problems confronting that art in 1954.

31. Walter M. May, who has been an engineer for the defendant since 1939 and is currently executive vice-president of engineering and product, testified that an ordinary civil engineer who was not skilled in the design of self-transit concrete mixers could have made the invention disclosed in the Willard patent on the basis of examining the prior art disclosures of the Payne and Oury patents, and that a mechanic might have been able to come up with the Willard construction.

32. Robert W. Fay, a chemical engineer who has been since 1964 a consultant and executive involved in the engineering and production of front-discharge self-transit concrete mixers, testified that the Willard construction would not have been obvious in 1954 to one skilled in the design of self-transit concrete mixers. Fay was in 1954 not involved in or familiar with the design of these vehicles, but his familiarity beginning in 1964 with vehicles designed in the mid-1950's and his participation in their design beginning at that time have made him familiar with the state of the art in 1955.

E. Secondary Considerations

33. Since at least the early 1940's there had been a need to develop a self-transit concrete mixer which could deliver concrete more efficiently, quickly and safely than the vehicles which were in use at that time. Throughout the 1940's and early 1950's, the advancements in the art of designing self-transit mixers were few and halting, e. g., improvements to the mixing drums and chutes for discharging concrete, and the principal problems persevered. The front-discharge self-transit mixer disclosed by the Willard patent marked an extremely significant advance in solving these problems. Immediately after its invention in 1955 the Willard construction met with little commercial success. The plaintiff R. W. Sims made improvements on the construction disclosed in the Willard patent in the late 1950's and early 1960's and he organized a corporation which purchased a license under the Willard patent and manufactured front-discharge mixers. Eventually six companies, including every major mixer manufacturer except for the defendant and one other, took licenses under the Willard patent to make, use and sell front-discharge self-transit mixers. These front-discharge mixers, incorporating improvements made by licensees (including R. W. Sims) and others (including the defendant), have enjoyed considerable commercial success from the mid-1960's until the present due to both the advantages disclosed in the Willard construction and those effected by the improvements.

34. The application for the Willard patent was filed on July 18, 1955. On November 14, 1955, Evan S. Pritchard filed an application for a patent relating to a front-discharge self-transit concrete mixer which disclosed a similar construction. In 1958 the plaintiff R. W. Sims began the process which culminated in the design and production of a prototype of a front-discharge self-transit concrete mixer resembling the Willard construction. Sims did not become aware of the efforts of Willard or Pritchard or of the constructions disclosed in these patent applications until he had a patent search conducted.

F. Combination

35. The component parts of the Willard vehicle do not differ greatly from components of self-transit mixers which already existed in the prior art. This construction

employs a mixing drum already in common use, a chute closely resembling that disclosed in the Merwin patent and a conventional truck chassis and cab. The cylindrical drum extension at the discharging end of the mixing drum in the Willard patent does not conform precisely to anything in the prior art, but it resembles closely the drum extension at the discharging end of the Payne construction both in its general shape (*i. e.*, of reduced diameter relative to the adjacent drum section) and function (*i. e.*, to project the discharge beyond the cab, over it in the Willard construction and under it in the Payne construction). The Willard patent thus represents a rearrangement of elements known in the prior art.

36. Among the effects of this rearrangement of known elements were the visibility of the discharging operation to the driver of the vehicle and more even weight distribution, producing more efficient, faster and safer discharge while retaining the advantages of modern mixing drum operation and of high discharge of concrete afforded by some rear-discharge mixers. These improvements were made possible by the rearrangement of the components disclosed in the Willard patent rather than by the components themselves.

III. INFRINGEMENT:

37. In 1973 the defendant engineered and began to produce and sell HMM chassis with half-cabs (*i. e.*, cabs occupying only the left half of the front of the vehicle), which were specially designed to accommodate concrete mixing drums which incline forwardly and discharge concrete above the cab and out a chute in front of the cab, in view of the driver.

38. In most instances from 1973 through 1975, the defendant sold HMM chassis only to manufacturers of cement mixing drums and to others, who would mount the drums on the chassis. In some of these cases, the defendant's personnel would work with the purchaser in order to insure that the chassis and drum were properly "mated", that is, that the chassis which was purchased would accommodate the drum properly.

39. In or before January 1977, the defendant sold to purchasers 24 HMM chassis with drums mounted on them and invoiced the purchasers for the price of the entire front-discharge mixer.

40. The defendant at no time manufactured complete front-discharge mixer vehicles consisting of chassis and mixing drums.

41. The defendant advertised to users of self-transit concrete mixers HMM chassis in brochures, in a promotional film and by exhibition in a trade show. The defendant did not limit its marketing effort to licensees under the Willard patent. These promotions mentioned that the defendant manufactured only a chassis which was adapted for use in a front-discharge concrete mixer. The promotional film, exhibition and most of the advertising depicted a complete front-discharge self-transit concrete mixer, however, and much of the defendant's advertising emphasized the advantages inherent in front-discharge mixers rather than in its HMM chassis alone.

42. The HMM chassis is adaptable to other uses besides front-discharge mixers, including rear-discharge concrete mixers, dump trucks and trucks with block haulers and cranes mounted on them. Of sixty-five HMM chassis sold by the defendant as of January 1977, sixty-two were ultimately used for front-discharge mixers, one for a rear-discharge mixer and two for special conveyor bodies.

43. The front-discharge self-transit concrete mixer depicted by the defendant in its advertisements and promotional film ("HMM mixer"), *i. e.*, an HMM chassis and cab with a forward discharging and forwardly inclined mixing bowl mounted upon it, provides for the discharge of concrete in view of the driver by positioning a mixing drum in the shape of a cylinder and frustum and a discharging chute in much the same way as the Willard construction.

44. There are three main differences between the construction disclosed in the Willard patent and the HMM mixer. First, the HMM mixer employs a half-cab, occupying only the left side of the front of the chassis, and the discharging end of the mixer is at

the front of the right side of the vehicle. Consequently, the discharging end of the mixing drum is to the right of and above rather than directly above the cab as it is in the Willard construction. However, the functions of the relative positions of the discharging end of the drum and the cab are identical in the HMM mixer and the Willard construction: to provide high discharge forward of the vehicle in view of the driver. In addition, the discharging chute in the HMM mixer is operated hydraulically whereas the chute in the Willard construction is moved manually. Again, though, the chutes serve the same function in both: the placement of the discharging chute in the HMM mixer is such that the driver can position the means for concrete delivery to a precise point. Third, the HMM mixer does not have a cylindrical drum extension at its discharging end but rather extends the frustum portion of the drum to the front of the chassis. This difference is of little or no practical significance, however, since the structure of the two drums is quite similar and the functions of the elongation of the frustum and the cylindrical drum extension are identical: to bring the discharging end of the forwardly inclined fixed-axis mixing drum above and forward of the cab.

45. The HMM mixer is a combination of a truck chassis; a cab mounted on the front of that chassis providing the driver with forward visibility; bearings behind the cab to support a mixing drum; a mixing drum of fixed longitudinal axis upwardly inclined toward the front with helical blades such that it could discharge by rotating it; a mixing drum composed of a cylindrical portion for mixing and frustum-shaped section forward of that extending in diminished diameter over the cab; means for rotating the drum located on the chassis; and a removable chute for discharging the concrete supported by an arm attached to the chassis.

46. The cab in the HMM mixer is located at least partly under the discharge end of the mixing drum in that it is of lower elevation. The HMM chassis also has a discharge chute supported by a supporting arm mounted on the truck chassis upon which the chute can be swung in and out of the driver's vision.

47. In the HMM mixer most of the engine is directly to the right of the driver's cab, with a smaller part of the engine extending behind and to the right of the cab.

48. In the HMM mixer the driver's cab is centered directly over the front axle.

IV. INTENTIONAL INFRINGEMENT:

49. The defendant was aware by 1963 of the plaintiffs' rights in the Willard patent and of the plaintiff trustee R. W. Sims' involvement in the production of front-discharge mixers. In that year an officer of the defendant visited R. W. Sims and received information concerning front-discharge mixers. The defendant ultimately decided not to enter into negotiations with the plaintiffs for a license under the Willard patent because it concluded that there was limited sales potential in this market.

50. In 1963 the defendant received from its patent counsel an opinion that the Willard patent would be infringed by virtually any front-discharge mixer with a cab mounted on the front of the chassis. That opinion concerned the scope of the Willard patent only and not its validity.

51. During a survey conducted in 1963, the defendant learned that a prominent manufacturer of self-transit mixers had concluded that the Willard patent was "fully bona fide" after a search by its patent counsel.

52. In late 1972 the defendant was asked by a customer and one of its distributors to produce for them a truck chassis which could accommodate a front-discharge concrete mixing drum. The defendant then conducted a new market study on front-discharge mixers and determined that it would be advantageous to enter this market.

53. During the early part of 1973, while it was engaged in the engineering and development of the HMM chassis and cab, the defendant was aware that production of these units might create liability for infringement by it of the Willard patent. Accordingly, the defendant's new product

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committee decided at its January 1973 meeting to proceed with Phase I of the engineering of the HMM chassis (involving modification of an existing chassis) but deferred a decision as to whether to embark on Phase II (design of a complete HMM chassis and cab which would be ready for mounting of a mixer), apparently in light of the patent problem.

54. A memorandum of the defendant dated March 23, 1973, stated that the patent rights to front-discharge mixers had been sold to a company which was experiencing financial difficulty.

55. At the defendant's March 27, 1973 new product committee meeting, a committee member (the defendant's director of marketing product planning) stated that the patent problem was no problem. At that meeting the product committee decided to go ahead with Phase II of the HMM program, involving engineering and release of the chassis. No employee of defendant had any reason at this time to believe that the Willard patent was invalid.

56. At the March 27, 1973 new product committee meeting, the officer of defendant who stated that the patent problem was no problem was advised to get an opinion from the defendant's patent counsel. On April 18, 1973, the defendant's patent counsel stated that manufacture of the HMM chassis and advertisement of its use in a front-discharge mixer would induce infringement of the Willard patent if the total self-transit mixer construction would so infringe. In a letter dated July 5, 1973, that counsel gave similar advice as to liability for inducing infringement by advertising the HMM chassis' use in a front-discharge mixer and suggested that the defendant authorize it to conduct a search into the validity of the Willard patent.

57. In a letter dated June 8, 1973, to one of the defendant's distributors, defendant's director of marketing product planning said that in spite of the patent problem the engineering of the HMM chassis was proceeding unimpeded and that the HMM program was going and would continue to go forward at full speed.

58. Robert W. Stieg, an engineer for the defendant, wrote in an August 7, 1973 memorandum that while the patent validity search was being made the defendant was continuing with Phase II of its engineering for the HMM chassis in order to be prepared to show a front-discharge mixer at its sales meeting in December 1973. Observing that the Willard patent would expire in just over two years, Stieg stated that:

> "I would assume the program would be of value even if the patent was proved basic. As I see it, the worst that could occur would be a royalty payment for two years by the party that mounted the front discharge mixer on the chassis."

This evaluation ignored the advice of patent counsel that defendant might be liable for inducing infringement even if it made and sold only chassis if it advertised their use in infringing mixers.

59. Defendant's patent counsel rendered an opinion on August 29, 1973, that the Willard patent was either invalid or should be limited in its coverage so as not to be infringed by the front-discharge mixer employing a half-cab chassis as proposed by the defendant. The defendant's patent counsel's letter of August 29, 1973, invited the defendant to contact it with any questions or comments on its opinion of patent invalidity. Walter M. May, the defendant's vice-president of engineering and a member of the new product committee who claimed he relied on the opinion letter, undertook no analysis of the opinion or further inquiry of counsel. It does not appear that any other employee of the defendant scrutinized that opinion or the references contained therein or contacted counsel.

60. The defendant knew at this time of at least one opinion of counsel engaged by a prominent mixer manufacturer that the Willard patent was valid.

61. When it sought and received the opinion letter from its patent counsel that the Willard patent was invalid, the defendant had already decided to engineer and sell HMM chassis for use in front-discharge self-transit mixers as soon as possible without purchasing a license under the Willard

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patent. The determination had been made that the benefits to be derived from marketing the chassis at the earliest practicable time outweighed the costs of a possible infringement suit, in which damages would be borne by the party assembling the entire vehicle and would be limited to royalties for two years. Consequently, there was no reason for the defendant to scrutinize or make inquiries as to the invalidity opinion it received from its counsel; even if it determined that the opinion was incorrect or suspect, it was going to continue with development of the HMM chassis. Thus, the defendant did not rely on the invalidity opinion in deciding to manufacture a chassis specifically designed to accommodate front-discharge mixers.

DISCUSSION

I. VALIDITY:

[1, 2] As a consequence of the statutory presumption that patents are valid, 35 U.S.C. § 282, defendants who raise the defense of patent invalidity in infringement cases ordinarily bear in this circuit the burden of demonstrating invalidity by "clear and convincing proof." *Tokyo Shibaura Electric Co. Ltd. v. Zenith Radio Corp.*, 548 F.2d 88, 93 (3d Cir. 1977); *Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 461 F.2d 66, 70 (3d Cir.), *cert. denied*, 409 U.S. 997, 93 S.Ct. 319, 34 L.Ed.2d 262 (1972). However, the Willard patent's file history reveals no citation or other evidence of consideration of the Payne patent for a front-discharge mixer.[1] Because I have determined that the prior art disclosed in the Payne patent was highly pertinent to the art patented by Willard, the failure of the Patent Office to consider it greatly weakens the statutory presumption of the validity of the patent. *Aluminum Co. of America v. Amerola Products Corp.*, 552 F.2d 1020, 1024–25 (3d Cir. 1977); *U. S. Expansion Bolt Co. v. Jordan Industries, Inc.*, 488 F.2d 566, 569 (3d Cir. 1973); *Phillips Electronic and Pharmaceutical Industries Corp. v. Thermal and Electronics Industries, Inc.*, 450 F.2d 1164, 1176 (3d Cir. 1971). I conclude therefore that the defendant does not bear the burden of demonstrating clear and convincing proof of patent invalidity; rather, the defendant must show by only a small amount more than the preponderance of the evidence that the patent in suit was invalid. Nonetheless, the statutory presumption is not entirely overcome here since the Patent Office did consider a great deal of extremely relevant prior art.[2] Therefore the burden of proof as to patent invalidity, including both the burden of going forward with the evidence and the burden of persuasion, remains on the defendant. *See DeMarines v. KLM Royal Dutch Airlines*, 580 F.2d 1193 at 1200–1201 (3d Cir. 1978).

It is my conclusion that under the *modus procedendi* for establishing patent invalidity on the basis of obviousness, 35 U.S.C. § 103, prescribed by the Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966), and by the Third Circuit in *Systematic Tool & Machine Co. v. Walter Kidde & Co., Inc.*, 555 F.2d 342 (3d Cir. 1977), and *Universal Athletic Sales Co. v. American Gym, Recreational & Athletic Equipment Corp., Inc.*, 546 F.2d 530 (3d Cir. 1976), the defendant has failed to make out its defense of patent invalidity. Section 103 provides in part that a patent is invalid

> "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the said subject matter pertains."

The Supreme Court in *Graham* stated that the ultimate question of obviousness or non-obviousness is a matter of law but added that in § 103 cases three factual determinations must underlie that ultimate resolution: the scope and content of the prior art; the differences between that prior art and the claims of the patent in suit; and the level of ordinary skill in the pertinent art. It added that secondary considerations such as the commercial success of the patented construction and its fulfillment of long felt and unresolved needs might be relevant to the obviousness question. 383 U.S. at 17–18, 86 S.Ct. at 693–694.

There is little room for disagreement as to the scope of the prior art relevant to the Willard patent or the differences between it and the Willard patent. The only significant contention advanced by the defendant as to these factual matters with which I disagree is the suggestion that the Payne patent embodies the primary advantage of the patent in suit: the discharge of concrete in the view of the driver from the truck to the point where it is to be applied, with the greater efficiency and speed stemming from that advantage. It is not clear to what extent the driver of a Payne vehicle would be able to observe from the cab the discharge of concrete and to vary the point of discharge without assistance and without leaving the cab. The description of the Payne patent makes it clear, however, that it does not contemplate the use of the construction disclosed in it in that manner. Rather, the Payne construction is to be used in combination with a portable concrete distributor. The Payne mixer would be able to be driven to the loading point of that portable distributor without the driver having to leave the cab, but the Payne patent contemplates that the concrete be applied to the work area not from the truck but from the portable distributor, which would be transported and operated by other workmen. Hence the advantage disclosed in the Willard patent of a one-person discharging operation was not anticipated by this prior art. This difference between the Payne disclosure and the Willard patent does not necessarily render the latter's subject matter patentable (*i. e.*, non-obvious), but it is a difference.

For the most part, however, the defendant demonstrated that the prior art included a front-discharge mixer employing an old fashioned cylindrical drum, that rear-discharge mixers operate in much the same way as the construction of the patent in suit and have the same component parts as the patent in suit, and that the crucial difference between the Willard patent and this prior art was the rearrangement of these components and extension of the mixing drum so that concrete would be discharged from the drum at a point above the driver and from the discharging chute at a point forward of the truck and in the vision of the driver.

As to the third factual inquiry mandated by *Graham*, the level of ordinary skill in the pertinent art, the defendant's case was woefully deficient, however. Before ascertaining the level of skill in the pertinent art, a factfinder must determine what the pertinent art is. In denying the defendant's motion for summary judgment on the basis of § 103 invalidity, I determined for purposes of that motion that the hypothetical person skilled in the pertinent art was the designer of self-transit concrete mixing trucks, *i. e.*, "the mechanically skilled individual familiar with the design of devices in the industry", *Systematic Tool & Machine Co. v. Walter Kidde & Co., Inc.*, 555 F.2d at 349 (citations omitted); *see also Universal Athletic Sales Co. v. American Gym, Recreational & Athletic Equipment Corp., Inc.*, 546 F.2d at 537, and I continue to look to that art.

The defendant presented testimony that designers of self-transit mixers in the 1950's had sufficient skill that it would have been obvious to them on the basis of the prior art to produce the Willard construction. Such evidence does not aid me very much in resolving the third factual issue posed by the Supreme Court in *Graham*. The purpose of this inquiry is to discern what the level of skill in the pertinent art was *gener-*

1. The plaintiffs have argued that several of the sub-classes of patents checked by the Patent Office examiner in connection with the Willard patent contain the Payne patent. Even if inclusion of the Payne patent in these sub-classes would be sufficient to constitute consideration by the Patent Office of it for these purposes, there is no evidence of such inclusion on this record. We must conclude therefore that the Patent Office did not consider the Payne patent in its consideration of Willard's application.

2. Indeed, on one of the defendant's theories of invalidity of the Willard patent, that it would have been obvious to rearrange the components of the rear-discharge mixers in common use at the time of the Willard patent application, the disclosure in the Payne patent is of only marginal relevance compared to the pertinence of the prior art of rear-discharge mixers with mixing drums of fixed axis.

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ally at the time of invention in order that I be able to determine as a matter of law whether the claims of the Willard patent would have been obvious on the basis of the prior art. Aside from the fact that I consider the testimony presented by the defendant as to the level of skill in this art unreliable because it came from witnesses either interested in the case or unfamiliar with that art, there was insufficient evidence of the general level of skill in that art for me to make meaningful findings of fact.[3] This void in the record represents a deficiency at least as great as that perceived by the Third Circuit on this point in *Universal Athletic Sales Co.* There that court held:

> "The trial judge suggested that the record as to the level of ordinary skill in the pertinent art was 'deficient.' Having so indicated, he should have refused to invalidate the challenged patent claims as obvious."

546 F.2d at 543.

Even reaching the legal question of obviousness in spite of this deficiency as to one of its factual underpinnings, I conclude that the defendant failed to establish that the claims of the Willard patent would have been obvious in 1955 to the designer of self-transit concrete mixers possessed of ordinary skill.[4] The defendant presented three witnesses on the issue of obviousness of the Willard patent. Exercising my broad discretion as to whether to accept expert testimony, *Salem v. United States Lines Co.*, 370 U.S. 31, 35, 82 S.Ct. 1119, 8 L.Ed.2d 313 (1962), I did not permit the testimony of one of the expert witnesses offered by the defendant, Irving M. Fogel. Fogel was qualified as an expert in the use of concrete, but his expertise in self-transit mixers was limited to his use of them and did not involve any familiarity with the design of such vehicles. Consequently, he demonstrated no qualifications to be an expert as to the design of such vehicles. *See Universal Athletic Sales Co.*, 546 F.2d at 537.

A second expert witness presented by the defendant, Richard B. Essex, was also qualified primarily as a user of and an expert in concrete and never designed self-transit mixers or any comparable devices. Essex did state that he had some familiarity with the design of such mixers, however, and so I received his testimony. Essex testified that it would have been obvious in 1954 to him—not to a designer of self-transit mixers—to produce the Willard construction if he were told to produce a vehicle which discharged concrete from its front end. In addition to the fact that this misstates the ultimate question in a § 103 case, which is whether the patented device would have been obvious on the basis of prior art to one of ordinary skill in the pertinent art, I am unwilling to rely on the testimony of an expert who was unfamiliar with the pertinent art and with the art of design generally.

[3] The defendant has argued that the testimony of Fogel ought to have been admitted and that that of Essex should be given controlling weight on the authority of *Systematic Tool & Machine Co. v. Walter Kidde & Co., Inc.*, 555 F.2d at 350 & n. 9. There the Third Circuit, having determined that the person of ordinary skill in the pertinent art was a mechanic familiar with the design of food slicing devices, stated that the controlling evidence as to the ultimate question of obviousness was the expert testimony of a mechanical engineer-designer that the device of the patent in suit would have been obvious to anyone with the skills of an ordinary mechanic or designer. The court held over Judge Rosenn's dissent that this testimony of obviousness to mechanics and designers was a *fortiori* evidence of obviousness to designers of food slicing devices.

I believe that this witness' testimony differed from Essex's in several important respects. The *a fortiori* reasoning in *Systematic Tool* was based on the presumption that food slicing designers possess all the skills of ordinary mechanics and designers, 555 F.2d at 350 n. 9. I am unwilling to presume that the designer of self-transit mixers of ordinary skill possessed in 1954 all of the skills and expertise of Essex, who was an expert in concrete use and user of these vehicles. The relationship presumed by the Third Circuit to exist between mechanics or designers in general and designers of food slicing machines, *i. e.*, that the latter would possess all the skills and knowledge of the former and more, cannot be presumed to exist between users of self-transit mixers with expertise in concrete use and designers of self-transit mixers. Essex's testimony therefore more nearly resembles the testimony of the expert in *Universal Athletic Sales Co.*, 546 F.2d at 537–38, a patent lawyer unskilled in and only slightly familiar with the pertinent art. There the Third Circuit did not invoke the presumption of expertise applied in *Systematic Tool*, and it regarded the expert's testimony as having at best marginal value.

In addition, the expert in *Systematic Tool* testified to a proper obviousness question when he stated that the patent in suit would have been obvious to any mechanic or designer of ordinary skill on the basis of the prior art. On the other hand, Essex testified that it would have occurred to him (not to a person of ordinary skill in any defined art) to construct the vehicle disclosed in the Willard patent if a customer had requested him to build a front-discharge mixer. Thus Essex testified that the patented device would have been obvious once the idea was derived of front discharge employing conventional self-transit mixer components, rather than that the Willard patent in its totality, including that idea, was obvious on the basis of the prior art.

In the final analysis I accept albeit with reservation the applicability of the *Systematic Tool* analysis to Essex's testimony. But I choose to give very limited weight to that evidence in light of its indirect bearing on the precise issue of whether the Willard patent would have been obvious to a designer of front-discharge mixers in 1955. Unlike the plaintiff in *Systematic Tool*, which allowed the expert testimony of the mechanical engineer to stand uncontradicted, the plaintiffs here offered expert testimony which, while imperfect, was more reliable than that of Essex.

[4] Similarly, I am unable to conclude that the patent was invalid on the basis of the testimony of Robert W. Stieg, an employee of the defendant who was involved in the design of self-transit mixers in 1955, that it would have come to his mind immediately in 1950 to construct a front-discharge mixer like that disclosed by Willard on the basis of the prior art. Again, the question of obviousness *vel non* was imprecisely asked. More importantly, I cannot give much weight to this testimony because of Stieg's interest in this litigation as an executive of the defendant, the developer of the HMM chassis and a participant in this litigation throughout its long history. His interest is at least as significant as that of the expert in *Universal Athletic Sales Co.*, who was an associate of the defendant's counsel. There the Third Circuit held it was error for the trial court to place heavy reliance on the testimony of the interested expert, 546 F.2d at 539. For the same reason, the testimony of Walter M. May, an executive vice-president of defendant who studied the front-discharge mixer and contacted the plaintiff R. W. Sims in 1963 and who was involved in the HMM chassis' development, that any civil engineer and "possibly" even a mechanic could have designed the Willard vehicle cannot be relied on. Stieg and May were interested experts by virtue of both their status as executives of the defendant and their personal involvement in this litigation.

I discount on similar grounds the testimony of R. W. Sims, the plaintiff trustee, that the Willard construction was non-obvious on the basis of the prior art. I am persuaded, however, by the testimony of the

3. The plaintiffs produced some evidence to the effect that designers of self-transit concrete mixers of ordinary skill in the mid-1950's lacked the skill necessary to solve the problems which confronted the art at that time. I do not consider this to be very useful evidence as to the level of ordinary skill in the art generally, but to the extent it is, it of course militates toward a finding of non-obviousness.

4. Section 103 concerns obviousness "at the time the invention was made." The time of invention of the Willard patent is determined by the date the application for the patent was filed, July 18, 1955.

plaintiffs' expert, Robert W. Fay, that the Willard patent was not obvious on the basis of the prior art. The greatest flaw in Fay's qualification as an expert is that he was not involved in the design of self-transit mixers until the late 1960's and hence his expertise as to the state of the art in 1955 and what would have been obvious to a person in that art comes from indirect rather than direct experience. Fay did testify, however, that he knew about that art and the skill of persons in it as a result of his involvement in the art some years later and his experience then with the vehicles designed in the 1950's. I do not believe that experience in the pertinent art at the time of invention is the only way one can acquire familiarity with the art at that time sufficient to make him a reliable expert as to obviousness. In fact, Fay was the only disinterested witness who demonstrated knowledge of the level of ordinary skill generally in the art at the relevant time and of the problems confronting that art. Accordingly, Fay was the only expert witness as to obviousness whose testimony merits controlling weight. At the very least, his testimony balances out the weak evidence of obviousness presented by the defendant. Even if I could not deem Fay's testimony controlling, therefore, neither could I rely on the evidence of the defendant, which bore the burden of proof as to a § 103 defense.

The defendant has also suggested that a conclusion of invalidity of the Willard patent based on obviousness is justified on the ground that the factfinder would conclude a reasonable person—*i. e.*, himself—would find it obvious at the time of trial on the basis of the prior art. This approach to a § 103 case seems to me impermissible in that it ignores the mandate of *Graham* that the ultimate § 103 determination cannot be made in a vacuum but rather requires a factual inquiry into the state of the pertinent art. Asking the factfinder to look at the patent in suit and determine whether it was or was not obvious without reference to the pertinent art or to time of invention would invite a rough guess as to obviousness, tempting the factfinder to exercise hindsight and read the teachings of the patent in suit into the prior art, *Graham v. John Deere Co.*, 383 U.S. at 36, 86 S.Ct. 684, rather than the careful analysis mandated by the Supreme Court in that case. In any event, I conclude that the patent in suit is not and was not in 1955 obvious to the reasonable person.

[5] The Court recognized in *Graham* that so-called "secondary considerations" might be probative of the obviousness of the patent. The following secondary considerations weigh on the side of non-obviousness in this case: (1) the Willard construction, as improved by various licensees under the patent, enjoyed beginning in the mid-1960's considerable commercial success;[5] (2) the gains in speed, efficiency and safety in the operation of self-transit concrete mixers made possible under the Willard patent fulfilled a long-felt need in the industry; and (3) the HMM chassis is a close imitation of the Willard construction based on samples obtained from licensees under the Willard patent and does not resemble closely any of the prior art. The last element, imitation of the patented construction by an infringer who relies on an obviousness defense, has not been recognized as a secondary consideration in this circuit, but it has been so considered by the Second Circuit, *Shaw v. E. B. & A. C. Whiting Co.*, 417 F.2d 1097, 1106 (2d Cir. 1969), *cert. denied*, 397 U.S. 1076, 90 S.Ct. 1518, 25 L.Ed.2d 811 (1970), *quoting Kurtz v. Belle Hat Lining Co.*, 280 F. 277, 281 (2d Cir. 1922), and its status as an indicium of non-obviousness does not appear to have been rejected by any court.

5. The significance of commercial success as evidence of non-obviousness in this case is diminished by the fact that commercial success came only after improvements were made to the construction disclosed in the Willard patent and depended in part on those improvements. Where commercial acceptance is attributable to properties other than those disclosed in the patent, it does not demonstrate even secondarily non-obviousness. *Douglas v. United States*, 510 F.2d 364, 370, 206 Ct.Cl. 96, *cert. denied*, 423 U.S. 825, 96 S.Ct. 40, 46 L.Ed.2d 41 (1975); *U. S. Expansion Bolt Co. v. Jordan Indus., Inc.*, 488 F.2d at 572 n. 13. Here, however, because the rearrangement of mixer components in the Willard patent played a large role in these vehicles' eventual success, this factor is entitled to some weight.

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[6] The fact that within several years of one another three persons, Willard, Pritchard and Sims, derived virtually the same construction is a secondary characteristic pointing towards obviousness, *Reeves Brothers, Inc. v. U. S. Laminating Corp.*, 417 F.2d 869, 872 (2d Cir. 1969); *Kaz Manufacturing Co., Inc. v. Northern Electric Co.*, 412 F.Supp. 470, 482, 484 (S.D.N.Y.1976). I believe that these secondary factors taken together favor non-obviousness, but in light of the limited weight they are entitled to in this circuit, *Tokyo Shibaura Electric Co. Ltd. v. Zenith Radio Corp.*, 548 F.2d at 94–95, I place little reliance on this conclusion.

The defendant argues that the Willard patent is invalid under § 103 as a combination patent which does not have a synergistic effect, while the plaintiffs have neither disputed nor explicitly agreed with the characterization of the patent in suit as a combination patent. Discounting for the moment the significance of extending the mixing drum at the discharging end, I agree with the defendant and several expert witnesses that the Willard patent is a novel combination of self-transit mixer components revealed in the prior art. Such combination patents are valid only if the familiar elements are put together in a fashion which produces a synergistic effect, "result[ing] in an effect greater than the sum of the several effects [of the components known in the prior art] taken separately." *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282, 96 S.Ct. 1532, 1537, 47 L.Ed.2d 784 (1976), *quoting Anderson's-Black Rock v. Pavement Salvage Co.*, 396 U.S. 57, 61, 90 S.Ct. 305, 24 L.Ed.2d 258 (1969). While the Supreme Court cases do not state clearly the relationship between a synergistic effect and the normal § 103 obviousness inquiry, it appears that at least in this circuit the synergistic effect is but "one factor to consider in determining obviousness," *Systematic Tool & Machine Co. v. Walter Kidde & Co., Inc.*, 555 F.2d at 350.

In any event, I find that the rearrangement of components in the Willard patent produces a marked synergistic effect in that two familiar elements, the mixing drum and the discharging chute, are for the first time place in a fashion such that concrete is discharged in view of the driver sitting in the cab of the vehicle, and less significantly that the drum is arranged to afford more even weight distribution. The Willard patent is not simply the rearrangement of "old elements with each performing the same function it had been known to perform," *Sakraida v. Ag Pro, Inc.*, 425 U.S. at 282, 96 S.Ct. at 1537, *i. e.*, the discharge of concrete from some end of the mixer, but rather a construction in which those elements perform a new and useful function, resulting in greater overall efficiency. The Willard patent deploys these components in a fashion that produces an entirely new result, not merely a "more striking" version of an old one. *Id. Cf. Systematic Tool & Machine Co. v. Walter Kidde & Co., Inc.*, 555 F.2d at 350; *U. S. Expansion Bolt Co. v. Jordan Industries, Inc.*, 488 F.2d at 571–72. While combination patents are as a general matter unlikely to be valid and therefore demand close judicial scrutiny, *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152, 71 S.Ct. 127, 95 L.Ed. 162 (1950), because the Willard patent produces a synergistic effect it is an exception to this usual rule.[6]

II. INFRINGEMENT:

There is no doubt that the complete HMM mixer depicted by the defendant in its promotional film and brochures infringes the Willard patent. Every element present in the Willard construction is incorporated into the HMM mixer, with the exceptions that in the latter the cab is directly above rather than forward of the front axle, the major part of the engine is alongside rather

6. The analysis mandated by these Supreme Court cases discredits or at least limits the rule that the reversal of familiar components does not produce a patentable device. *See Continental Scale Corp. v. Harrison Wholesale Co.*, 132 F.2d 463, 466 67 (7th Cir. 1942). *See also Louis A. Grant, Inc. v. Keibler Indus., Inc.*, 377 F.Supp. 1069, 1083 (N.D.Ind.1973), *appeal dismissed*, 541 F.2d 284 (7th Cir. 1976), in which the court limited the rule to situations in which the reversal produces no new results.

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than behind the cab, and the discharge chute is controlled hydraulically. The other differences pointed out by the defendant, the absence of a cylindrical drum extension in the HMM mixer and its use of a half-cab with the discharging end of the mixer not directly above it, do not disturb my conclusion that Willard mixers' and HMM mixers' main components all perform "substantially the same function in substantially the same way to obtain the same result." *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*, 339 U.S. 605, 608, 70 S.Ct. 854, 856, 94 L.Ed. 1097 (1950), *quoting Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42, 50 S.Ct. 9, 74 L.Ed. 147 (1929). Thus, even where the HMM mixer did not literally infringe the Willard patent, there is infringement under the doctrine of equivalents set forth in *Graver*. Furthermore, it is clear that the defendant cannot escape liability for infringement by virtue of the fact that its structure represents an improvement over the patented one. *Temco Electric Motor Co. v. Apco Manufacturing Co.*, 275 U.S. 319, 328, 48 S.Ct. 170, 72 L.Ed. 298 (1928); *Ziegler v. Phillips Petroleum Co.*, 483 F.2d 858, 871 (5th Cir.), *cert. denied*, 414 U.S. 1079, 94 S.Ct. 597, 38 L.Ed.2d 485 (1973).

Because the defendant was not authorized to make, use or sell this infringing device, any sale or use by it of complete HMM mixers before that patent expired on November 11, 1975, constitutes direct infringement under 35 U.S.C. § 271(a).[7] The defendant is liable for direct infringement by virtue of its use before that date of infringing front-discharge mixers to promote sales of its HMM chassis. There is also evidence on this record, in the form of defendant's answer in January 1977 to an interrogatory, that it sold complete HMM mixers. This evidence does not establish, however, how many if any of those sales occurred before the expiration of the patent on November 11, 1975. The defendant argues that I should find as a result of this lack of specificity that there was no direct infringement. I believe that such a conclusion would be inequitable in light of the bifurcated nature of this proceeding. The trial thus far has determined the issues of patent validity and infringement of the Willard patent by the HMM mixer in the favor of the plaintiffs. In the damages stage, at which time the number of infringements and the reasonable royalty for them will have to be determined, *see Trio Process Corp. v. L. Goldstein's Sons*, 533 F.2d 126, 129–30 (3d Cir. 1976), I will permit the plaintiffs to establish the number of sales (if any) by defendant of complete HMM mixers before November 11, 1975.

The defendant is correct, however, in its contention that on two related grounds the manufacture or sale of an HMM chassis does not make it liable as a direct infringer: the Willard patent is not a patent for a chassis and, as a combination patent, it is protected "only against the operable assembly of the whole and not the manufacture of its parts." *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 528, 92 S.Ct. 1700, 1707, 32 L.Ed.2d 273 (1972). *See also Aro Manufacturing Co., Inc. v. Convertible Top Replacement Co., Inc.*, 365 U.S. 336, 344, 81 S.Ct. 599, 603, 5 L.Ed.2d 592 (1961).

[7] The defendant asserts that it is not liable for direct infringement in instances of sale or use of complete vehicles where the mixing drum was manufactured by a licensee under the Willard patent. Non-infringement as a result of licensing is, however, a defense to an infringement claim, *Grip Nut Co. v. Sharp*, 124 F.2d 814, 815 (7th Cir. 1941); *Talbot v. Quaker-State Oil Refining Co.*, 104 F.2d 967, 967–68 (3d Cir. 1939), and therefore must be pleaded by the defendant under 35 U.S.C. § 282 and, apparently, F.R.Civ.P. Rule 8(c).[8]

7. Section 271(a) provides in part that "whoever without authority makes, uses or sells any patented invention, within the United States during the term of the patent therefor, infringes the patent."

8. Rule 8(c) requires that affirmative defenses be pleaded. The case law establishes that the existence of a license constitutes a defense to an infringement. Whether it is an affirmative defense is not clear from the cases and moot since § 282 requires pleading of all defenses. The Third Circuit in *Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 461 F.2d at 74, appears to consider all § 282 defenses as affirmative defenses, however.

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The defendant did not plead the existence of a license as a defense in its answer and it points to no other pleading of this defense. Rather, it has taken the position that because § 271(a) makes liable as an infringer anyone who makes, uses or sells a patented device "without authority" the showing of non-authority (*i. e.*, non-existence of a license) is an element of the plaintiffs' infringement case. The defendant cites no authority for this proposition, and I have been able to find none. It seems to me a harsh result to hold that the defendant has waived this defense when the record is unequivocal that licenses did exist and that at least some of the defendant's sales and uses incorporated mixing drums made by licensees, but that is the result mandated by § 282 and the Third Circuit's analysis in *Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 461 F.2d at 74.

In determining whether the defendant is liable for inducing infringement under 35 U.S.C. § 271(b),[9] I am faced with a problem analogous to that posed by the direct infringement claim in this case. Because there must be a direct infringement in order for there to be an inducement of it, *Aro Manufacturing Co., Inc. v. Convertible Top Replacement Co., Inc.*, 365 U.S. at 341, 81 S.Ct. at 602, the defendant cannot be liable for inducing infringement in instances where HMM chassis it manufactured and sold were not used to construct infringing front-discharge mixers until after the expiration of the Willard patent on November 11, 1975. Because I cannot yet conclude which HMM chassis sold by defendant were used in front-discharge self-transit concrete mixers which directly infringed the Willard patent (that is, those that were constructed or sold before November 11, 1975), the plaintiffs will have to establish this fact at the damages phase of this proceeding.[10]

[8] I conclude that in each instance in which an HMM chassis was used in the construction of a front-discharge mixer, the sale of the HMM chassis by the defendant constituted an inducement of infringement. The statute provides only that active inducement is necessary for § 271(b) liability, and the cases do not shed bright light on what constitutes active inducement. It appears, however, that such inducement requires acts which cause, urge, encourage or aid another to infringe and knowledge by the inducer that infringement is likely. *Fromberg, Inc. v. Thornhill*, 315 F.2d 407, 411 (5th Cir. 1963); *Ingersoll-Rand Co. v. Rockwell International Corp.*, 420 F.Supp. 277, 281 (S.D.Fla.1976); *Burlington Industries, Inc. v. Exxon Corp.*, 379 F.Supp. 754, 757 (D.Md.1974). I conclude that the design and engineering of the HMM chassis for the specific purpose of accommodating front-discharge mixing drums, the solicitation of the HMM chassis depicted as part of a front-discharge mixing unit, the promotion of the advantages of such a unit and the marketing and sales of the HMM chassis constituted inducement of infringement in each instance where an HMM chassis was sold and later used to construct a front-discharge mixer. Clearly, the entire thrust of the development of this product by defendant was to cause and encourage others to produce front-discharge mixers. Just as clearly, these efforts, apparently aimed by defendant toward prospective vendees without discriminating between licensees and non-licensees under the Willard patent, deliberately rather than accidentally caused infringements of the Willard patent, *Fromberg, Inc. v. Thornhill*, 315 F.2d at 411, and were made with knowledge that infringement was likely.

The defendant asserts as it does with respect to the direct infringement claim that it cannot be liable for sales to parties who were licensed under the patent. I must reject that contention for the same reason that bound me with respect to direct infringement: a defense to an infringement claim based upon the existence of a license has been waived as a result of the defendant's failure to plead the defense. I can see

9. Section 271(b) provides, "Whoever actively induces infringement of a patent shall be liable as an infringer."

10. Of course, there is no direct infringement by anyone and hence no inducement of infringement in the cases of HMM chassis used in vehicles other than front-discharge mixers.

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no way to distinguish for purposes of § 282's broad requirement that defenses be pleaded between licenses as a defense to a direct infringement claim and licenses of vendees as a defense to an inducement of infringement claim. Finally, the authorities advanced by the defendant for the proposition that § 271(b) does not apply to mere solicitation are inapposite since I perceive the defendant's conduct in this case as including solicitation coupled with manufacture and sale (as well as design and engineering) of an infringing product. *See, e. g., Powerlock Floors, Inc. v. Robbins Flooring Co.*, 327 F.Supp. 388, 390 (D.Del.1971), *aff'd per curiam*, 464 F.2d 1022 (3d Cir. 1972); *Hautau v. Kearney & Trecker Corp.*, 179 F.Supp. 490, 492 (E.D.Mich.1959).

[9] With regard to contributory infringement pursuant to 35 U.S.C. § 271(c),[11] I conclude that the defendant is not liable because the HMM chassis was a staple article suitable for substantial non-infringing uses. A contributory infringer is one who sells a component of a patented device, as the HMM chassis was with respect to front-discharge mixers infringing the Willard patent, with the conjunctive requirement that the contributory infringer know (1) that the component is made especially for an infringing use and (2) that the component is not a staple article of commerce suitable for any substantial non-infringing use. The evidence is clear that the defendant designed, engineered and made the HMM chassis by adapting another chassis particularly for use in front-discharge self-transit mixers, satisfying the first branch of § 271.

[10] Whether the HMM chassis was suitable for substantial non-infringing use is a close question. This is neither a case in which the component manufactured by the defendant can be flatly stated to have been a staple article of commerce suitable for substantial non-infringing use, *see Eversharp, Inc. v. Philip Morris, Inc.*, 256 F.Supp. 778, 781, 786 (E.D.Va.1966), *aff'd per curiam*, 374 F.2d 511 (4th Cir. 1970); *Haskell v. Lever Brothers Co.*, 243 F.Supp. 601, 607, 614 (S.D.N.Y.1965), nor one in which the non-infringing uses have been shown to be a "mere theoretical capability," *Fromberg, Inc. v. Thornhill*, 315 F.2d at 415, or to be dangerous and significantly less suitable uses of the component part, *see Bliss & Laughlin Industries, Inc. v. Bil-Jax, Inc.*, 356 F.Supp. 577, 581 (N.D.Ohio 1972). Here the defendant established that the HMM chassis could be used in a number of types of non-infringing vehicles. There is no evidence on the record that any or all of these uses were merely theoretical or that the HMM chassis would not be efficient or safe in these usages. The record reflects further that three of the first sixty-five HMM chassis sold were incorporated into structures other than front-discharge mixers.

While this hardly makes an overwhelming case for substantiality of non-infringing use, neither have the plaintiffs made the case that the HMM chassis was not suitable for substantial non-infringing use, and the burden is on them to make out this element of § 271(c) liability. Were I to conclude the HMM chassis was not suitable for substantial non-infringing use, I would be doing so primarily on the basis of the fact that this component was especially adapted for the infringing use. That analysis would render the conjunctive of § 271 a nullity.[12]

11. Section 271(c) provides:
"Whoever sells a component of a patented machine, manufacture, combination or composition . . . constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such a patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use, shall be liable as a contributory infringer."

12. Nor do I conclude that the plaintiffs have made out a case that the HMM chassis was not a "staple article or commodity of commerce." *See Bliss v. Laughlin Indus., Inc. v. Bil-Jax, Inc.*, 356 F.Supp. at 581, where the court determined on the basis of the dictionary definition of staple that this language imposes a requirement that the component parts be produced regularly or in large quantities. The plaintiffs have produced insufficient evidence for me to make the legal conclusion that the HMM chassis was not a staple commodity.

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III. INTENTIONAL INFRINGEMENT:

Under 35 U.S.C. § 284 I am authorized to increase the damages assessed against the infringing defendant by up to three times the amount which would compensate the plaintiff for the infringement. The plaintiffs seek treble damages on the ground that the defendant's infringement of the Willard patent was knowing, deliberate, wanton and willful. A finding of such conduct on the part of the defendant places the increasing of damages within my discretion. *Blake v. Bassick Co.*, 392 F.2d 879, 883 (7th Cir.), *cert. denied*, 393 U.S. 828, 89 S.Ct. 94, 21 L.Ed.2d 100 (1968); *Jenn-Air Corp. v. Penn Ventilator Co., Inc.*, 394 F.Supp. 665, 676 (E.D.Pa.1975). *See also Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 533 F.2d at 131.[13] Increased damages are to be awarded sparingly and only in cases where deliberate disregard of patent rights has been shown clearly, *American Safety Table Co. v. Schreiber*, 415 F.2d 373, 378 (2d Cir. 1969), *cert. denied*, 396 U.S. 1038, 90 S.Ct. 683, 24 L.Ed.2d 682 (1970).

Obviously, the defendant's infringement of the Willard patent was in no sense accidental or inadvertent. The defendant had known of the existence of the Willard patent and of the plaintiffs' ownership of the rights embodied in that patent since 1963. When it decided to study, design, engineer, produce, market and sell a chassis adapted for use in a front-discharge mixer, the defendant was aware of the possibility that its conduct would make it liable for the infringement of the Willard patent. In disputing that any infringement by it was wanton and willful, the defendant places principal reliance on its consultation of patent counsel, its receipt of an opinion letter dated August 29, 1973, in which that counsel stated that the Willard patent was invalid, and its alleged reliance on that letter.

[11] The defendant is correct in asserting that it can demonstrate its good faith, precluding the trebling of damages on the basis of wanton and willful infringement, by showing that it reasonably relied on the advice of its patent counsel that the patent in suit was invalid. *See, e. g., Union Carbide Corp. v. Graver Tank & Manufacturing Co., Inc.*, 282 F.2d 653, 660 (7th Cir. 1960); *Besly-Welles Corp. v. Balax, Inc.*, 291 F.Supp. 328, 344 (E.D.Wis.1968), *aff'd in part, rev'd in part on other grounds sub nom. Bendix Corp. v. Balax, Inc.*, 421 F.2d 809 (7th Cir.), *cert. denied*, 399 U.S. 911, 90 S.Ct. 2203, 26 L.Ed.2d 562 (1970); *Technograph Printed Circuits, Ltd. v. Bendix Aviation Corp.*, 218 F.Supp. 1, 57 (D.Md.1963), *aff'd per curiam*, 327 F.2d 497 (4th Cir.), *cert. denied*, 379 U.S. 826, 85 S.Ct. 53, 13 L.Ed.2d 36 (1964); *University of Illinois Foundation v. Block Drug Co.*, 133 F.Supp. 580, 591 (E.D.Ill.1955), *aff'd*, 241 F.2d 6 (7th Cir.), *cert. denied*, 354 U.S. 922, 77 S.Ct. 1382, 1 L.Ed.2d 1437 (1957). The thrust of these cases, however, is that good faith can be made out if the infringer demonstrates reasonable reliance on the advice of counsel—that is, that it justifiably believed the advice of invalidity and that it would not have infringed the patent were it not for the inaccurate opinion of its counsel. An infringer's consultation of patent counsel, solicitation of a validity opinion and receipt of an opinion of invalidity do not by themselves preclude a finding of wanton and willful infringement justifying increased damages. *Duplate Corp. v. Triplex Safety Glass Co. of North America*, 81 F.2d 352,

13. The defendant asserts that the issue of wanton and willful infringement is not properly before me on the ground that such infringement was not pleaded. However, the amended complaint alleges in Count Two (the unfair competition claim, as to which I granted the defendant's motion for summary judgment) facts amounting to willful and wanton patent infringement and in its prayer seeks the trebling of damages. This amounts to a sufficient pleading of intentional infringement, *Copease Mfg. Co. v. American Photocopy Equip. Co.*, 298 F.2d 772, 783 (7th Cir. 1961), in light of the absence of any requirement in § 282 or elsewhere that reliance on § 284 for increased damages must be specifically pleaded by a plaintiff. While some courts have reserved until after damages have been calculated judgment as to whether they should be increased under § 284, *e. g., W. L. Gore & Assocs., Inc. v. Carlisle Corp.*, 381 F.Supp. 680, 694 (D.Del.1974), *aff'd in part, rev'd in part on other grounds*, 529 F.2d 614 (3d Cir. 1976), I see no reason to delay my decision in that this issue has been fully tried and briefed and neither party has requested that its resolution be stayed.

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354 (3d Cir. 1935), *modified on other grounds*, 298 U.S. 448, 56 S.Ct. 792, 80 L.Ed. 1274 (1936); *W. L. Gore & Associates, Inc. v. Carlisle Corp.*, 381 F.Supp. 680, 694 (D.Del.1974), *aff'd in part, rev'd in part on other grounds*, 529 F.2d 614 (3d Cir. 1976); *Hartford National Bank and Trust Co. v. E. F. Drew & Co.* 188 F.Supp. 353, 361 n.41 (D.Del.1960), *aff'd per curiam*, 290 F.2d 589 (3d Cir.), *cert. denied*, 368 U.S. 825, 82 S.Ct. 45, 7 L.Ed.2d 29 (1961).

[12] I find that the defendant had already decided, without regard for the validity of the Willard patent, to market the HMM chassis without becoming a licensee at the time it sought and received the August 29, 1973 opinion letter. *See McCulloch Motors Corp. v. Oregon Saw Chain Corp.*, 245 F.Supp. 851, 855 (S.D.Cal.1965), where the court found the defendant "had already 'aggressively' proceeded to the design and manufacture of, and to the plans for active distribution of" the infringing product at the time it requested an opinion from counsel and concluded, on that and other grounds, that the infringement was intentional for § 284 purposes. I will summarize only briefly the evidence pointing to this conclusion here: (1) the great expenditure of resources in the development of the product before patent counsel was asked about validity; (2) the fact that it was counsel, and not the defendant itself, that suggested a validity search be undertaken after it had concluded that the defendant's proposed conduct would make it liable as an inducer; (3) the assurances by an executive of defendant that the patent problem was not a problem before any opinion as to the invalidity of the Willard patent existed; (4) the statement in August 1973 of another executive of the defendant that because the Willard patent would expire in 1975 the marketing of the HMM chassis would be beneficial even if the Willard patent were valid and infringed by the HMM mixer; (5) the failure of the defendant to demonstrate that the final decision of its new product committee to produce the HMM chassis was delayed because it was waiting for a validity opinion or was based on the receipt of the August 29, 1973 letter, and the letter to a distributor stating the contrary; and (6) the apparent failure of May or any other employee of defendant involved in this decision to analyze, question or discuss with patent counsel the invalidity decision, although it was known to the defendant that patent counsel retained by another manufacturer had opined that the Willard patent was valid. In light of this evidence, I have concluded that the defendant did not rely on the August 29 letter when it intentionally infringed and induced infringement of the Willard patent, and I will therefore award increased damages. Because the mere existence of counsel's advice of invalidity "may be relevant" to increasing damages, *W. L. Gore & Associates, Inc. v. Carlisle Corp.*, 381 F.Supp. at 694, and the defendant may have relied in some minor degree on this opinion, however, I will hold defendant liable for damages double rather than treble the reasonable royalty necessary to compensate the plaintiffs for the infringement of their rights.[14]

IV. ATTORNEY FEES:

[13] The plaintiffs maintain that this is an "exceptional case" within the meaning of 35 U.S.C. § 285, permitting me to award reasonable counsel fees, on the grounds that the defendant had far greater economic resources than the plaintiffs and is guilty of bad faith and fraud in its conduct of this

14. The defendant's contention that increased damages cannot be assessed against it relies to a lesser extent on the proposition that such damages are not permitted where the infringer had a colorable belief that the patent was invalid, *Maclaren v. B-I-W Group Inc.*, 401 F.Supp. 283, 304–05 (S.D.N.Y.1975), *rev'd on other grounds*, 535 F.2d 1367 (2d Cir.), *cert. denied*, 429 U.S. 1001, 97 S.Ct. 531, 50 L.Ed.2d 612 (1976). To the extent that this case expands the rule that reasonable reliance on an authoritative opinion of invalidity is necessary to demonstrate good faith and holds that a belief of invalidity appearing in retrospect to have an arguable basis whatever its source and unrelated to the infringer's action is sufficient, I reject its authority. Where, as here, the close issue of validity was of no particular importance to an intentional infringer's state of mind in deciding to infringe, it is also irrelevant to the degree of culpability and to the damage calculation under § 284.

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infringement action, in particular because the defense was a "mere mock-up." Only the showing of a losing party's misconduct, *e. g.*, bad faith, fraud, or undue harassment, makes a case "exceptional" in this circuit and allows the prevailing party to be compensated for monies spent in litigating it. *Chemical Construction Corp. v. Jones & Laughlin Steel Corp.*, 311 F.2d 367, 374 (3d Cir. 1962); *W. L. Gore & Associates, Inc. v. Oak Materials Group, Inc.*, 424 F.Supp. 700, 709 (D.Del.1976). While I find that the defendant exercised bad faith in intentionally infringing the Willard patent, I consider the defenses of patent invalidity and non-infringement raised at trial to have been colorable, non-frivolous ones, and I see no proof of bad faith or other misconduct by it in this defense.

CONCLUSIONS OF LAW

1. This case arises under the patent laws of the United States, Title 35 of the United States Code, and I have jurisdiction over the subject matter pursuant to 28 U.S.C. § 1338(a). I also have jurisdiction over the parties.

2. The date of invention for the Willard patent is its date of filing, July 18, 1955.

3. The presumption of the validity of the Willard patent is weakened by the United States Patent Office's failure to consider and cite the Payne patent, but the defendant continues to bear the burden of proof as to its invalidity defense with respect both to going forward with the evidence and to persuading the factfinder by a preponderance of the evidence.

4. The subject matter disclosed in the Willard patent would not have been obvious in 1955 to a designer of self-transit concrete mixers of ordinary skill on the basis of the prior art, nor would it have been obvious to a reasonable man then or in 1978.

5. The rearrangement of component parts known in the prior art which the Willard patent effects is synergistic in that this combination of elements produces an effect greater than the sum of the effects of the component parts taken separately or arranged in any manner revealed in the prior art.

6. The Willard patent is valid under 35 U.S.C. § 103.

7. The Willard patent is valid under 35 U.S.C. § 112.

8. A front-discharge mixer mounted on an HMM chassis and cab, as depicted by the defendant in its advertising and promotional film, infringes claims 5, 7, 8, 9 and 11 of the Willard patent. That structure does not infringe claims 1, 2 and 4 of the Willard patent.

9. The defendant is liable for direct infringement of the Willard patent under 35 U.S.C. § 271(a) on the basis of any complete front-discharge mixers employing an HMM chassis which it used or sold before November 11, 1975, the date of expiration of the Willard patent.

10. Each manufacture, use or sale by any person before November 11, 1975, of a front-discharge mixer employing an HMM chassis constituted a direct infringement by that person of the Willard patent under 35 U.S.C. § 271(a).

11. The defendant is liable for inducement of infringement of the Willard patent pursuant to 35 U.S.C. § 271(b) in the case of each manufacture, use or sale by another person before November 11, 1975, of a front-discharge mixer employing an HMM chassis sold by it.

12. Manufacture, use or sale of a front-discharge mixer by any person on or after November 11, 1975, does not constitute direct infringement of the Willard patent. In these instances, consequently, the defendant is not liable for inducing infringement pursuant to 35 U.S.C. § 271(b).

13. The HMM chassis was known by the defendant to be especially adapted for use in infringing front-discharge self-transit mixers but was also known by it to be a staple article of commerce suitable for other substantial uses. The defendant consequently is not liable for contributory infringement pursuant to 35 U.S.C. § 271(c).

14. The defendant intentionally and willfully infringed the Willard patent by selling front-discharge mixers, and it intentionally and willfully induced others to in-

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fringe the Willard patent by manufacturing and selling HMM chassis. The defendant failed to demonstrate good faith and reliance on the opinion of its patent counsel rendered on August 29, 1975, that the Willard patent was invalid. Plaintiffs therefore are entitled pursuant to 35 U.S.C. § 284 to double the compensatory damages to be calculated on the basis of a reasonable royalty for each infringement or inducement of infringement by the defendant.

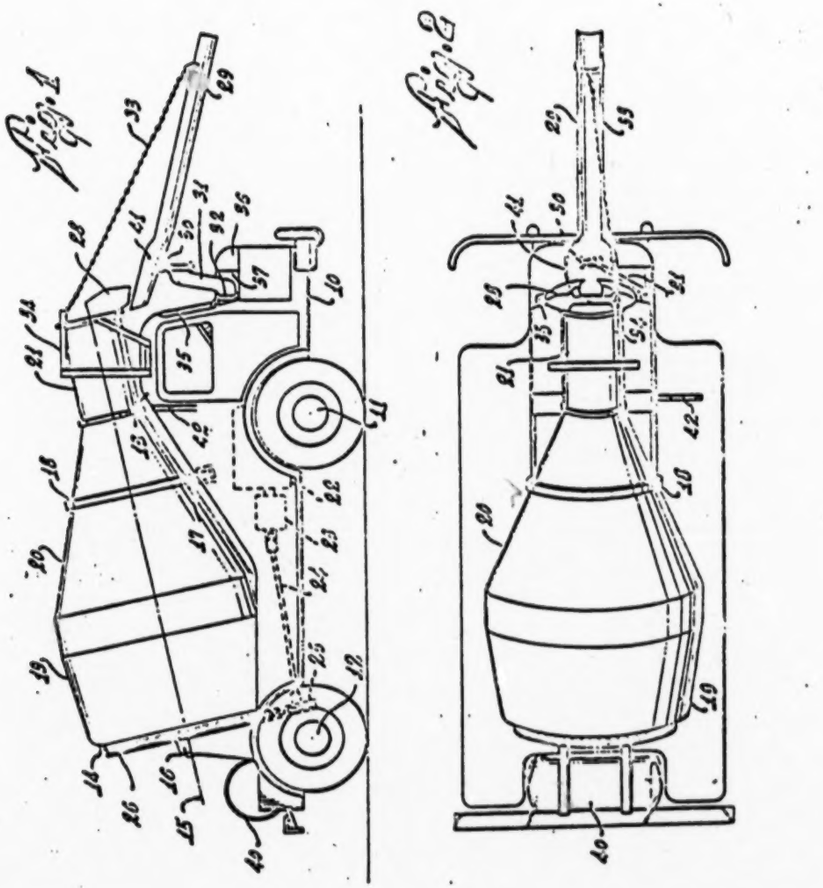
15. The defenses of invalidity of the Willard patent on the ground of obviousness and of non-infringement were not frivolous, nor was the defendant guilty of bad faith in any other manner in this litigation. The plaintiffs therefore are not entitled to reasonable attorney's fees pursuant to 35 U.S.C. § 285.

KEY NUMBER SYSTEM

Nov. 11, 1958 J. J. WILLARD 2,859,949

FORWARD DISCHARGING TRANSIT CONCRETE MIXER

Filed July 18, 1955 2 Sheets-Sheet 1



INVENTOR.
J. Jack Willard
BY
Attorneys

Nov. 11, 1958 J. J. WILLARD 2,859,949

FORWARD DISCHARGING TRANSIT CONCRETE MIXER

Filed July 18, 1955 2 Sheets-Sheet 2

Fig. 3

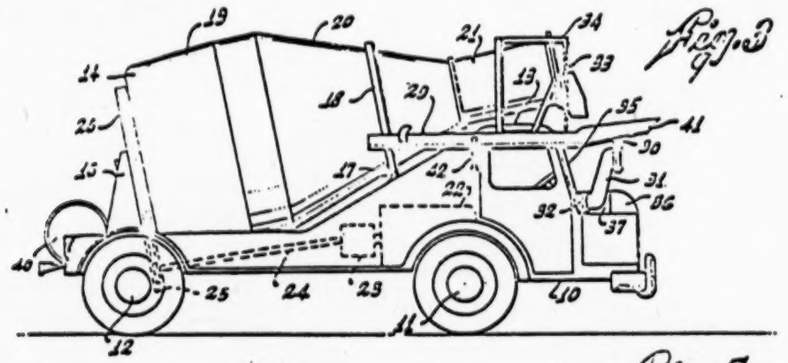


Fig. 5

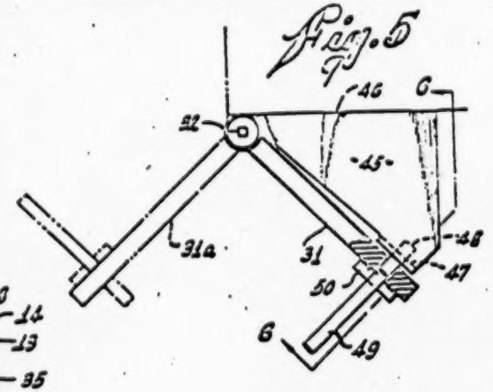


Fig. 4

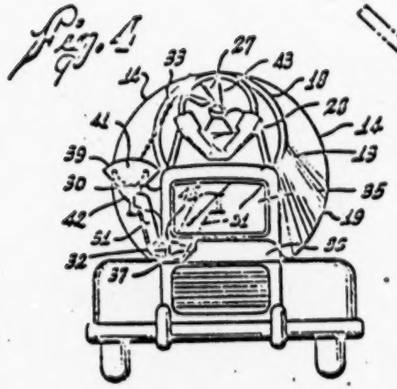
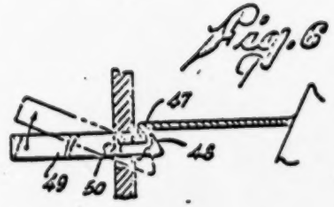


Fig. 6



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FORWARD DISCHARGING TRANSIT CONCRETE MIXER

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Application July 18, 1955, Serial No. 522,600

12 Claims. (Cl. 259—161)

This invention relates to transit concrete mixers. Such concrete mixers comprise a vehicle, means for propelling the vehicle, a mixer mounted on the vehicle, and means for operating the mixer both while it is standing in place and while it is in transit between locations, for example, between a central concrete mixing plant and various job locations. More particularly, this invention relates to a transit concrete mixer with the mixing drum arranged to rotate about a fixed axis inclined upwardly toward the forward end of the vehicle, and provided with one or more internal helical blades adapted to discharge the contents of the mixer upwardly and toward the forward end of the vehicle when said drum is rotated in a direction opposite to that used for mixing. In its preferred form, the invention employs a drum which diminishes in cross section toward its forward end, and which is shaped in its forward end to provide an elongated passage of reduced cross section passing over the driver's location and adapted to discharge the mixed concrete from a point above and forward of the driver's location. A further feature of the invention in its preferred form is a delivery chute arrangement pivotally mounted immediately forward of the driver's location and in full view of the driver, and adapted to receive concrete from said forward discharge of said mixer drum and distribute it to various points at the end of said chute in full view of the driver; provision is made for retracting said chute and its pivot mounting from the driver's view when the chute is not being employed for concrete delivery. In another preferred form, the engine and the power take-off for driving the mixer drum are located over the front axle and under the upwardly tilted forward end of the mixer drum, and the driver's cab is carried in cantilever suspension forward of the front axle.

When large quantities of concrete are to be used in a construction job, it is more efficient to mix the wet concrete at a central mixing plant located near gravel and sand pits than to mix it at the job site; also, the quality of mix produced by a large central mixing plant is likely to be better. The mixed wet concrete is then hauled in trucks to the construction jobs in which the concrete is to be used, and there poured. During transit, it is necessary that mixing action be continued to prevent segregation of the ingredient materials and undesirable settling of the wet concrete during transit. It is standard practice in the transit concrete mixer art to employ a rotating mixing drum mounted on a truck and driven by the truck engine or by an independent engine provided for the purpose. It is necessary, however, that special clutches and gear boxes be provided if the truck engine itself is to be used for rotation of the drum in transit, in order that the drum may be maintained at a constant optimum rate of rotation regardless of driving speeds and conditions.

It has been standard practice to mount the mixer drums on the transporting vehicle with the charging and discharging opening at the rear of the vehicle. It has not appeared practical in the past, to attempt to discharge

concrete over the top of the driver's cab and over the front hood. Also, many transit concrete mixers are designed to tilt the drum and discharge the concrete by lowering the discharge opening below the level of the main mixing section. Such tilting and swiveling drums have the disadvantages that they require complex and expensive mechanisms, and that they tend to be damaged and put out of commission by the rough usage in construction work and by spilling of concrete into their working parts. The present invention makes use of a drum mounted on a rotary axis of fixed inclination and of such construction and design that material in the drum may be mixed by rotating the drum in one direction, and said material may be discharged from the drum without tilting the same by merely counter-rotating the drum. This is accomplished by one or more helical blades on the interior surfaces of the drum leading up to its discharge opening. A drum of this type, and the internal feed helix used in connection with it, is disclosed and described in United States Patent Reissue 23,320, reissued January 2, 1951 to Carl L. Willard and J. Jack Willard.

In transit concrete mixers of the type heretofore used, both charging and discharging must be done at the rear of the truck and it is necessary for the driver in the cab at the forward end of the vehicle to back into the charging location. This is not as easily done with precision as would be possible if he were able to drive his truck head on into charging location. Even more serious, however, is the problem of properly locating the discharge opening at the construction job location. On such jobs, the truck approaches are necessarily improvised and shifted from point to point. The driver must back into each new location with the accompanying difficulties of backward steering and without an adequate view of the discharge point. Also, because of poor visibility and poor steering control when backing up, the driver dares not approach the discharge point as closely as if he were approaching it with the forward end of his vehicle. The driver must exercise special care to avoid backing onto a surface too weak to support the truck, or backing completely over the edge of the supporting ramp and into the construction forms. After pouring begins, the driver cannot observe clearly all phases of the pouring operation from his cab, where the engine controls are located.

It is desirable in transit concrete mixers to have the discharge opening located at a point beyond the wheels so that discharge can be made over the work, and the reach of the delivery chute may be extended. However, with the conventional rear discharge mixer drum, it is not practical to extend a discharge portion of the drum for any length, as this would unduly increase the length of the truck.

In the rear discharge type of transit concrete mixer, the weight is heavily concentrated on the rear wheels since it is generally most practical to locate the drum with its largest portion over the rear wheel and its discharge opening extended backward from the rear axle. Such an arrangement not only locates most of the weight over the rear axle, but locates the center of gravity of the drum and its wet concrete content rather high off the ground as compared with what is usually considered good truck loading practice.

The rear discharge mixing drum type of transit concrete mixer does not utilize space within the truck to greatest advantage. The uptilted end of the mixer drum is reduced in cross section, but the space under it is back of the rear axle and in a location not conveniently used, not only from a structural standpoint, but also because such space is in a location vulnerable to damage during pouring operations. For example, the entire truck

chassis must be somewhat longer in order to accommodate fuel tanks at a point back of the driver's cab.

It is an object of the present invention to provide a forward discharging transit concrete mixer capable of being steered head-on up to the point of charging or discharging. In connection with this object, it is also an object to make it possible for the driver to conveniently observe discharge of the concrete.

Another object is to provide a forward discharge transit concrete mixer with both discharge openings and driver location in cantilever support forward of the front axle, thus extending the reach of the discharge opening of the mixer drum and the delivery chute while at the same time the driver is in his cab with the advantages of safety, full visibility of the pouring operation, and convenient location of steering engine controls.

It is a further object to provide a front discharge transit concrete mixer with the weight distributed with the greater percentage on the forward axle than has usually been possible in back discharge mixers, and with the center of gravity located nearer the ground than is the case with similar backward discharging concrete mixers.

Still another object is to provide a forward discharge transit concrete mixer with the uptilted end of diminished cross section arranged in a manner which makes it possible to use the space under it for the driver's cab, engine and power take-off, and fuel tanks.

The present invention makes use of a forward discharging mixer drum of the fixed inclined axis type, employing internal helical blades to effect charging or discharging, depending upon the direction of rotation.

The design and operation of the preferred specific embodiment of the invention will be described in connection with the accompanying drawings, in which:

Figure 1 is a side elevational view of the transit concrete mixer with the chute in position for forward discharge of concrete;

Figure 2 is a plan elevational view of the mixer as shown in Figure 1;

Figure 3 is a side elevational view of the forward discharge transit concrete mixer with the chute retracted out of the driver's range of vision;

Figure 4 is a front elevational view of the transit concrete mixer showing the delivery chute in retracted position;

Figure 5 is a plan view of the supporting arm of the delivery chute showing it in two positions; and

Figure 6 is a vertical sectional view, taken in the direction of the arrows 6—6 in Figure 5, showing a latch for locking the chute support in pouring position.

In Figure 1, the numeral 10 indicates a truck with the conventional front steering axle 11 and fixed rear axle 12. The driver's cab 13 is cantilever supported forward of front axle 11. A tilted mixer drum 14 is mounted with a fixed axis of rotation 15, being journaled at rear bearing support 16 and having its forward end carried on bogie wheels 17, which contact the circumferential track 18 encircling the forward part of mixer drum 14. The mixer drum 14 is comprised of an enlarged mixing section 19, a frusto-conical discharge section 20, and a discharge conduct section 21.

An engine 22, seen in dashed lines in Figure 1, is preferably located just over front axle 11 and under the conical section 20 of the mixer drum 14, is used to propel truck 10 (ordinarily by rear wheel drive) and, by means of a power take-off not shown, to engage a large gear 26 mounted on the rear end of mixer drum 14, and to drive mixer drum 14 in either mixing or discharging directions of rotation by means of a power take-off 23, shaft 24, chain 25, and large drive gear 26 mounted on the rear end of mixing drum 14. Mixing and mixer drum 14 and discharge therefrom are accomplished by internal helical blades and selected by means of direction as fully disclosed in the previously mentioned U. S. Patent Reissue 23,320, and as now well known in the smith-mixing art.

Mixed wet concrete is charged to the interior of drum 14 at the central concrete plant by way of forward opening 27, and discharge from the same opening at the pouring location delivers concrete to hopper 28 and thence to delivery chute 29 which is pivotably mounted at pivot 30 on swinging supporting arm 31, which is hinge-mounted at 32 to the frame of driver's cab 13. The lower end of delivery chute 29 is supported by means of a chain 33, which is attached to a chain bracket 34 mounted on the top of driver's cab 13. It will be noted that hinge mounting 32 is located below the range of vision of the driver through windshield 35. This location for hinge 32 minimizes obstruction of the driver's view but necessitates removal of depression of part of front hood 36 as indicated at 37 in order to permit supporting arm 31 to swing to and from cement discharge position.

The forward charging and discharging design illustrated makes it practical to locate fuel tank 40 at the rear of the vehicle, the position usually preferred because it is farthest removed from the driver's cab 13.

Preferably, the receiving end of delivery chute 29 is shaped in the form of a receiving pan 41 substantially wider than the transverse width of the chute 29 so that concrete can be discharged from the hopper 28 to receiving pan 41 without spilling, regardless of the horizontal angle through which the chute 29 is swung in the process of concrete delivery.

Figures 3 and 4 are side and front views of the transit concrete mixer with the supporting arm 31 swung out of the range of the driver's forward vision through windshield 35, and the chute 29 moved into stowing position alongside the driver's cab 13, in which it is supported by means of a bracket 42 mounted on the truck chassis just back of the driver's cab.

In Figure 4, the end of internal helical blades 43 are visible. These blades serve to mix the concrete during transit and, when counter-rotated, to discharge the concrete from mixer drum 14 in the manner of an Archimedes screw, as previously mentioned in this specification, and, as is well known in the prior art since the disclosure of United States Reissue Patent 23,320.

Figures 5 and 6 illustrate a simple and rugged latch for locking supporting arm 31 in position for discharge of cement via delivery chute 29. The plan view of Figure 5 shows the upper end of hinge 32, and, extending from it, a catch plate 45, which is permanently fixed, as shown, in a position diagonally across hood 36 in front of windshield 35, whose location is indicated in Figure 5 by dashed line 46. As seen in Figure 6, catch plate 45 has an overhanging lip 47 adapted to engage hook 48 on the end of latch bar 49, which is pivoted to swing in a vertical plane about pivot pin 50 mounted on the surface of supporting arm 31, which is shown in Figures 5 and 6 in position for cement delivery. When delivery chute 29 is stowed on bracket 42 as illustrated in Figures 3 and 4, supporting arm 31 is swung out of range of forward vision of the driver as indicated by the dashed lines 31A in Figure 5.

While I have illustrated and described what I now regard as the preferred embodiment of my invention, the construction is, of course, subject to modifications without departing from the spirit and scope of my invention. I, therefore, do not wish to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a transit concrete mixer of the type comprised of a transporting truck and a rotatable drum mounted on said truck with a fixed tilted axis of rotation and internal helical blades adapted to either mix concrete within said drum or discharge it from said drum depending upon the direction of rotation, the combination of: a driver's location suspended forward of the front axle of said truck; the mixer drum as described having its axis of rotation longitudinal with respect to said truck and tilted upwardly towards the forward end, said mixer drum being supported in fixed bearings in said truck and being comprised of a mixing section of enlarged transverse cross section located near the rear axle of said truck, a conical discharge section forward of said mixing section and diminishing in transverse cross section to a point near said driver's location, and a discharge conduit leading from the forward end of said conical discharge section over the driver's location and opening at a point above and forward of the driver's location; movable chute means for passing concrete from the forward discharge end of said drum to a location visible from said driver's location; and engine means for said transit concrete mixer supported in the bed of said truck and located at least in major part under said conical discharge section.

2. In a transit concrete mixer, the combination of: a mixer drum supported on said transit concrete mixer with a fixed inclined axis of rotation longitudinal with respect to said mixer and having its upper end toward the forward end of said mixer, said drum being adapted to be selectively rotated in both directions, and having a helical blade therein for charging, mixing, and discharging, and a discharge opening at the upper forward end of said mixer drum; a driver's housing at least partly under the upper forward end of said mixer drum, said driver's housing providing the driver with a field of forward vision; engine means under said uptilted forward end of said drum, back of said driver's housing, engaging the rear end of said drum to rotate the same; a supporting arm mounted on said transit concrete mixer by means of a hinge mounting, and adapted to swing to positions in or out of said driver's field of forward vision; and a concrete delivery chute for receiving concrete from the discharge opening of said mixer drum and delivering it to the point of pour, said chute being supported at least in part on said supporting arm.

3. In a transit concrete mixer, the combination of: a truck chassis; a mixer drum rotatably supported on fixed bearings in said chassis with a fixed axis of rotation inclined upwardly toward the forward end of said chassis, said mixer drum having a mixer section of enlarged cross section in its lower portion, and a discharge conduit section of substantially smaller transverse cross section at its forward end; a driver's location on said chassis at least partly under said forward end of said drum; hopper means adapted to receive concrete from the discharge opening at the forward end of said discharge conduit section; internal helical blades within said mixer drum adapted to carry concrete from said mixer section and discharge it from the discharge opening of said discharge conduit section to said hopper means, when said drum is rotated in a proper direction; engine means mounted in fixed position in said chassis and drivingly connected to said drum to rotate the same as aforesaid; a chute-supporting arm disposed obliquely to the horizontal and hinge-mounted at its lower end to said transit concrete mixer; and a concrete delivery chute supported at one end on the upper end of said supporting arm, and adapted to receive concrete from said hopper means and discharge said concrete to any one of several pour points.

4. In a transit concrete mixer, the combination of: a forward driver's location adapted to provide the driver with a field of forward vision; a mixing drum mounted on said transit concrete mixer with a fixed axis of rotation inclined upwardly toward the forward end of said mixer, said drum being adapted to be selectively rotated in both directions and having an internal helical blade adapted to discharge concrete from a discharge opening at the upper forward end of said drum, said drum being comprised of a mixing section of enlarged transverse cross-section near the rear axle of said transit mixer, a conical discharge section forward of said mixing section and diminishing in cross-section to pass over said driver's location; engine means for said transit mixer located at least in major part back of said driver's location and under said conical discharge section; and removable chute means for continuously passing concrete from said discharge of said mixing drum away from said driver's location.

5. In a transit concrete mixer, the combination of: a truck chassis; a forward driver's location mounted on said chassis and adapted to provide the driver with a field of forward vision; a plurality of drum-supporting bearings mounted in fixed positions on said chassis behind said driver's location; a mixing drum rotatably carried in said bearings with a fixed axis of rotation inclined upwardly toward the forward end of said chassis, said drum being adapted to be selectively rotated in both directions and having an internal helical blade adapted, while said drum is rotated in a given direction in said bearings, to discharge concrete from a discharge opening at the upper forward end of said drum, said drum being comprised of a mixing section of enlarged, transverse, cross-section behind said driver's location, a conical section forward of said mixing section and having a forward extension of diminished cross-section extending over said driver's location when said drum is carried in said bearings as aforesaid; power means for rotating said drum, said power means being mounted in fixed position on said chassis and being reversible whereby to rotate said drum in one direction to discharge concrete therefrom as aforesaid, or selectively in the other direction to mix concrete in said drum; and removable chute means for continuously passing concrete from said discharge opening of said drum away from said driver's location.

6. In a transit concrete mixer, the combination of: a truck chassis; a forward driver's location mounted on said chassis and adapted to provide the driver with a field of forward vision; a plurality of drum-supporting bearings mounted in fixed positions on said chassis behind said driver's location; a mixing drum rotatably carried in said bearings with a fixed axis of rotation inclined upwardly toward the forward end of said chassis, said drum being adapted to be selectively rotated in both directions and having an internal helical blade adapted, while said drum is rotated in a given direction in said bearings, to discharge concrete from a discharge opening at the upper forward end of said drum, said drum being comprised of a mixing section of enlarged, transverse, cross-section behind said driver's location, a conical section forward of said mixing section and having a forward extension of diminished cross-section extending over said driver's location when said drum is carried in said bearings as aforesaid; power means for rotating said drum, said power means being mounted in fixed position on said chassis and being reversible whereby to rotate said drum in one direction to discharge concrete therefrom as aforesaid, or selectively in the other direction to mix concrete in said drum; and chute means carried on said chassis on a hinge mounting located forwardly and to one side of said driver's location, said chute means being adapted when in a discharge position to continuously pass concrete from the discharge opening of said drum away from said driver's position and being swingable on said hinge mounting to a transit position wherein said field of vision is unobscured.

7. In a transit mixer, the combination of: a truck chassis; a mixer drum supported on said chassis with a fixed inclined axis of rotation longitudinal with respect to said chassis and having its upper end toward the forward end of said chassis, said drum being adapted to be selectively rotated in both directions and having a helical blade therein for charging, mixing, and discharging, and a discharge opening at the upper forward end of said drum; a driver's housing mounted on said chassis and at

least partly under the upper forward end of said drum, said driver's housing providing the driver with a field of forward vision; power means mounted on said chassis and drivingly engaging the rearward end of said drum to rotate the same as aforesaid; a supporting arm mounted on said chassis by means of a hinge mounting, and adapted to swing to positions in and out of said driver's field of forward vision; and a concrete delivery chute for receiving concrete from the discharge opening of said drum and delivering it to a point of pour, said chute being supported at least in part on said supporting arm.

8. A transit concrete mixer, including: a truck having a cab; a rotary mixing drum, one end of which is open to receive and discharge concrete; means supporting said drum in fixed position on the truck behind said cab and with the open end thereof disposed substantially at the forward end of the cab; and means fixed on the truck for rotating said drum.

9. A transit concrete mixer, including: a truck having a driver's station at one end thereof; a rotary mixing drum, one end of which is open to receive and discharge concrete; means supporting said drum in fixed position on the truck with the open end thereof disposed substantially at the same end of the truck as is the driver's station; means on the truck for rotating said drum; and means for conveying concrete discharged from said drum extended, when in operative position, beyond said driver's station whereby an operator situated in the driver's station may control the truck to position the conveying means in a precise predetermined location.

10. A transit concrete mixer, including: a truck having a cab adjacent the front end thereof; a rotary mixing drum, one end of which is open to receive and discharge concrete; means supporting said drum in fixed position on the truck behind the cab with the rotary axis thereof inclined upwardly and forwardly and with the open end of the drum disposed above said cab substantially at the forward end thereof; and means fixed on the truck for rotating said drum.

11. A transit concrete mixer, including: a truck having a driver's station at one end thereof; a rotary mixing drum, one end of which is open to receive and discharge concrete; means supporting said drum in fixed position on the truck with the open end thereof disposed substantially at the same end of the truck as is the driver's station and at a higher elevation than said driver's station; means on the truck for rotating said drum; an inclined chute for conveying concrete discharged from said drum, said chute when in operative position, being forwardly extended beyond said driver's station whereby an operator situated in the driver's station may control the truck to position the extended end of said chute in a precise predetermined location.

12. A transit concrete mixer, including: a truck having a cab; a rotary mixing drum, one end of which is open to receive and discharge concrete; means supporting said drum in fixed position on the truck behind said cab and with the open end thereof disposed substantially at the forward end of the cab; means fixed on the truck for rotating said drum; an inclined chute pivotally mounted on said truck in front of said cab and having a relatively high proximal end positioned to receive concrete from the open end of said drum and a relatively low distal end extending forwardly of said cab when in operative position.

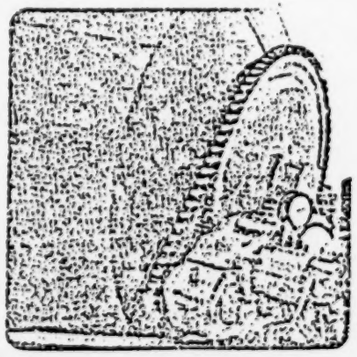
References Cited in the file of this patent

UNITED STATES PATENTS

2,327,475	Wagner et al.	Aug. 24, 1943
2,661,935	Willard	Dec. 8, 1953
2,672,327	Oury	Mar. 16, 1954
2,706,623	Styes	Apr. 19, 1955
2,729,435	Harbers et al.	Jan. 5, 1956

New mobile mixer uses X-A-R

Revolutionary concrete truck has 12-yard capacity, features front-end discharge. Bowl has 10-12-year life expectancy.



In addition to resisting 35,000-lb. stresses, double-wall X-A-R drive wheel shrugs off abra-

Young: "You have never been now, you are not now, and never have been, in the design business. You are not an expert in the design of front, of front discharge transit mixers?"

Essex: "That is correct." (647A)

* * *

Young: "I call your attention to the fact that in your qualifications there is a section on design, and throughout the application there refers to the field of transit mixer trucks making concrete, serving as a consultant, and you put behind the reference to design, zero time. That is correct, is it not, that is your handwriting?" (1282A-1)

Essex: "That is correct." (648A)

* * *

Young: "Did you ever undertake any study of any documents testified to by any engineer in the form of any documents that have been marked? Did you ever take the trouble to do that?"

Essex: "No, sir." (654A)

* * *

Young: "Have you ever purchased a front discharge concrete mixer truck?"

Essex: "No, sir."

Young: "Have you ever tested one?"

Essex: "No, sir." (653A)

* * *

Young: "Now, these were all references that were given you by an attorney, were they not?"

Essex: "That is correct."

Young: "It is not the result of any search which you did, is it?"

Essex: "No, Sir." (652A)

* * *

Young: "Did you ever compare any opinion that you might offer to the court today with an opinion of an expert employed either by Rexnord or by Mack Trucks?"

Essex: "No, Sir." (653A)

Considering the foregoing, it is apparent that Essex had never been a designer of anything (much less concrete mixer trucks). Essex had not even a perception of the problem of the art at the time of the invention (744A), so how could he testify as to a solution? He failed to understand the advantages of a front discharge mixer, unlike Mr. May, the Mack Vice President, who followed Richard Essex to the stand (720A). Essex had never undertaken any studies in connection with the lawsuit, confined himself to elements of prior art selected by the defendant's counsel, had never even consulted the technical tests and studies that Mack had which were contrary to his testimony, and had never even considered the interpretation of the prior art given by the Patent Office (673A). Essex never tested or, indeed, even examined the test results of Mack's front discharge mixer, or even asked or took the trouble to ask for any of their test results or examined their product (657A).

As a matter of fact, Mack's witness, Essex, on cross-examination, actually testified favorably about the revolutionary character of the Willard invention. The record speaks clearly:

Young: "How long and how persistent were the problems that Willard expressed in his patents? Of how long duration were they? Were they of some long-standing duration? If you know."

Essex: "The fact that the truck mixer dumped out of the rear the problem had been there for many, many years."

Young: "Do you believe that the invention is revolutionary?"

Essex: "It is different."

Young: "It is revolutionarily different?"

Essex: "It is 180 degrees different."

Young: "That's about as far away as you can get, the North and South Pole, isn't it?"

Essex: "That's right."

Young: "So, viewed from the prior art, he not only broke with the prior art, he revolutionized the art, didn't he?"

Essex: "In that he enabled the truck to forward discharge, he revolutionized the art." (666A, 667A)

At page 26 of its brief, Mack quarrels with the reasoning of the District Court that the obviousness question posed to Mr. Essex "assumed too much when it asked the witness how to design a

Supreme Court, U. S.
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IN THE

Supreme Court of the United States

October Term, 1979.

No. 79-1219.

R. W. SIMS, TRUSTEE, and
R. W. SIMS, TRUST,

Petitioners,

v.

MACK TRUCKS, INC.,

Respondent.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Third Circuit.

BRIEF FOR RESPONDENT IN OPPOSITION TO PETITION.

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Respondent.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT.

BRIEF FOR RESPONDENT IN OPPOSITION TO PETITION.

The Respondent, Mack Trucks, Inc. (hereinafter "Mack"), submits this brief in opposition to the Petition for a Writ of Certiorari to the United States Court of Appeal for the Third Circuit filed by Petitioners, R. W. Sims, Trustee and R. W. Sims, Trust (hereinafter collectively referred to as "Sims"), and respectfully prays that the Petition for a Writ of Certiorari be denied.

OPINIONS BELOW.

The opinion of the United States Court of Appeals for the Third Circuit (App. A-1) [1] is reported at 608 F. 2d 87 (1979). The opinion of the United States District Court for the Eastern District of Pennsylvania (App. A-19) is reported at 459 F. Supp. 1198 (1978).

COUNTERSTATEMENT OF THE QUESTIONS PRESENTED.

I. Whether the Court of Appeals erred in defining the level of ordinary skill in the pertinent art.

II. Whether the Court of Appeals held that synergism is required in combination patent cases.

STATUTE INVOLVED.

United States Code, Title 35:

§ 103. Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. The designation "App. A-__" refers to the Petitioners' Appendix.

COUNTERSTATEMENT OF THE CASE.

Sims brought this lawsuit against Mack for infringement of a patent, "the Willard Patent," for a front-discharging self-transit concrete mixer.[2] After trial, the District Court found that the Willard Patent was valid and infringed by Mack. However, the United States Court of Appeals for the Third Circuit reversed the District Court on the ground that the patent was obvious under the criteria established by this Court in *Graham v. John Deere Co.*, 383 U. S. 1 (1966). The Court of Appeals' decision rested solely on its finding that the District Court had defined too restrictively the third criterion of *Graham*—the level of ordinary skill in the pertinent art. In this regard, the Court of Appeals ruled that the hypothetical person with ordinary skill in the pertinent art was one familiar with the design of self-transit concrete mixers and that, to such a person, the Willard Patent was obvious.

The Statement of the Case set forth in the Petition erroneously focuses on the activities of the trustee-Petitioner, R. W. Sims, rather than on the subject matter of the Willard Patent. An examination of the cited evidence, in those infrequent instances where evidence is cited, reveals that the Petition's facts are grossly and irresponsibly misstated.[3] However, since most of these facts are also totally irrelevant, an item-by-item rebuttal is unnecessary. Nevertheless, several facts concerning Mr. Sims are relevant. First, Mr. Sims is not the inventor or patentee; he independently conceived a front discharging transit concrete mixer. When he attempted to patent this construction, his lawyer's patent search revealed that the concrete

2. United States Patent No. 2,859,949 issued on November 11, 1958 to J. Jack Willard. (459 F. Supp. at 1200; App. A-21.)

3. The opinions of the District Court and Court of Appeals set forth a more accurate statement of the relevant facts.

mixer had already been patented by Mr. Willard. Mr. Sims then negotiated an assignment of the Willard Patent rights to the Sims trust. (459 F. Supp. at 1201; App. A-22.) Second, the Petition argues that skepticism as to the workability of the patented device demonstrates the non-obviousness of the Patent (*e.g.*, Petition, pp. 12-13). However, as the District Court found, many improvements had to be made by Mr. Sims and others to the patented construction to make it workable. These improvements, which were not disclosed in the Willard Patent, were responsible for the concrete truck's commercial success. The necessity for these improvements led the District Court to give less weight to the significance of commercial success in considering the Willard Patent's obviousness. (459 F. Supp. at 1206, 1214; App. A-27, A-35.) The fundamental nature of such improvements is exemplified by Mr. Sims' testimony that it took him four years to make the barrel in his front discharging truck mix and discharge properly. (Jt. App. 1681A; see also Jt. App. 1815A, 1821A.)[4] In fact, Mr. Sims gave his opinion at trial as to the workability of the construction disclosed in the Willard Patent:

> In other words, sometimes you can get a drop of water out of the tap, showing that the water system works, but it doesn't always come out as fast as you would like it to, let's put it that way.

(Jt. App. 1896A.) Of course, if you want to take a shower, a drop of water hardly makes the system workable or usable.

Turning to the Willard Patent itself, the most important fact in this case is the finding by the District

4. The designation "Jt. App. —-A" refers to the Joint Appendix filed with the Court of Appeals.

Court that the Willard Patent is a combination patent which consisted solely of a rearrangement of elements present in the prior art. In this regard, the District Court stated:

> 35. The component parts of the Willard vehicle do not differ greatly from components of self-transit mixers which already existed in the prior art. This construction employs a mixing drum already in common use, a chute closely resembling that disclosed in the Merwin patent and a conventional truck chassis and cab. The cylindrical drum extension at the discharging end of the mixing drum in the Willard patent does not conform precisely to anything in the prior art, but it resembles closely the drum extension at the discharging end of the Payne construction both in its general shape (*i.e.*, of reduced diameter relative to the adjacent drum section) and function (*i.e.*, to project the discharge beyond the cab, over it in the Willard construction and under it in the Payne construction). The Willard patent thus represents a rearrangement of elements known in the prior art.

(459 F. Supp. at 1206-7; App. A-27-8.) Like the Willard Patent, the Payne Patent, referenced above, was a "*forward discharging* transit concrete mixer."[5] The primary difference between the Payne Patent and the Willard Patent is that the truck disclosed in the Payne Patent discharged concrete by tilting the mixing drum, whereas the truck disclosed in the Willard Patent discharged concrete by rotating a fixed axis drum. (See drawing and description of the Payne Patent in the District Court opinion, 459 F. Supp. at 1203; App. A-24.) Shockingly, the Payne

5. The quoted language is the title of the Willard Patent. (App. A-45.)

Patent was not cited by the United States Patent Office as prior art in the Willard Patent. (459 F. Supp. at 1203; App. A-24.) The District Court found that the Payne Patent "was among the prior art most pertinent to the Willard patent because it embodies a front-discharge self-transit mixer." Since the Payne Patent was not cited by the Patent Office, the District Court held that the presumption of validity ordinarily accorded a patent was greatly weakened. (459 F. Supp. at 1203, 1210; App. A-24, A-31.)

Given the Payne Patent and the other prior art, the Court of Appeals found:

> In essence, the Willard concept did nothing more than flip the discharge end of the drum from the rear to the front of the truck. That it offered advantages in delivery of the concrete to the construction point, such as reduction of outside help in positioning the chute, is clear. But the gains in maneuverability and elimination of backing the truck, which are characteristics of the front-discharge mode, were also present in the Payne patent.

(608 F. 2d at 91; App. A-9.) Mack's witnesses at trial persuasively indicated that the Willard Patent merely updated the Payne Patent by substituting a modern Oury[6] concrete mixing drum, which existed in the prior art, for the outdated tilt-type drum of the Payne Patent. (Testimony of Stieg: Jt. App. 2323-24A, 2340-41A; Testimony of Essex: Jt. App. 2523-24A.) Even Mr. Fay, Sims' only expert witness on prior art, gave partial, albeit reluctant, support to this proposition. Mr. Fay refused to admit that

6. This patent, described in the District Court opinion (459 F. Supp. at 1201-2; App. A-22-3), is the fixed, inclined axis type mixing drum used in the Willard Patent which discharges the concrete when the drum is rotated in one direction and mixes the concrete when the drum is rotated in the other direction.

it would have been obvious to substitute an inclined fixed axis drum of the Oury type in place of the Payne drum. However, he did concede that "it could be" obvious to substitute a horizontal fixed axis type rotating drum in place of the Payne drum. (Jt. App. 2693A.) When asked whether he knew of anyone who had reversed an Oury-type drum prior to the Willard Patent, he said he did not. Confronted with a prior art patent showing this, he admitted that it was "essentially" an Oury-type drum pointing toward the front. (Id. at 2692-94A.)

REASONS FOR DENYING THE PETITION.

Rule 19(1) of the Rules of the Supreme Court of the United States states that a petition for a writ of certiorari "will be granted only where there are special and important reasons therefor." The Rule sets forth a non-exhaustive list of special and important reasons. None of these are present in this case. Although the instant Petition asserts (Petition, pp. 8-9) that the Circuit Courts have had difficulty in reconciling prior Supreme Court decisions dealing with the obviousness question, it will be seen that no such difficulty was encountered by the Court of Appeals in resolving the instant case. Although the Petition asserts (Petition, pp. 11-12) that the Court of Appeals' decision is inconsistent with *United States v. Adams*, 383 U. S. 39 (1966), it will be seen that the issue decided here by the Court of Appeals was not discussed in *Adams*. Finally, although the Petition points to an apparent conflict in the Circuit Courts as to the requirement of synergism in combination patent cases (Petition, pp. 15-16), the synergism question was not decided by the Court of Appeals in this case. In short, the Court of Appeals' decision in this case rests upon the proper application to this particular patent of the test set forth by this Court in *Graham v. John Deere Co.*, 383 U. S. 1 (1966). The value of the Court of Appeals' decision in this case as a precedent for other cases is accordingly so limited. This case was correctly decided, and, more importantly, it is not worthy of review by the United States Supreme Court.

I. The Court of Appeals Did Not Err in Defining the Level of Ordinary Skill in the Pertinent Art.

The Petition, at page 7, recites the three step analysis set forth by this Court for obviousness cases in *Graham v. John Deere Co.*, 383 U. S. 1 (1966) and then asserts:

"This appeal involves the third factual inquiry, namely, the resolution of the level of ordinary skill in the pertinent art." (*Id.*) Mack agrees that this is the issue in this case. Mack objects, however, to Sims' attempts to "puff up" this issue into something that it is not. For example, in the questions presented, Sims asserts that the Court of Appeals applied a nonobjective standard of patent validity. This misses the mark. The Court of Appeals did not apply any new standards. It simply held that the District Court erred in its application of the third test of *Graham* relating to the ordinary skill in the pertinent art. The Court of Appeals' decision rests on the Court's conclusion that, since the Willard Patent was a combination patent, each of the elements of which was present in the prior art and performed the same functions in the Willard Patent as they performed in the prior art, the District Court set too high a standard for the hypothetical person with "ordinary skill in the pertinent art."

It was on the District Court's definition of the level of ordinary skill in the pertinent art that the Court of Appeals specifically reversed. The District Court held that the hypothetical person with ordinary skill in the pertinent art was the designer of self-transit concrete mixing trucks. (459 F. Supp. at 1211; App. A-32.) In setting this standard, the District Court attempted to follow the admonition in *Systematic Tool & Machine Co. v. Walter Kidde & Co.*, 555 F. 2d 342, 349 (3d Cir.), *cert. denied*, 434 U. S. 857 (1977), that such a hypothetical person is "the mechanically skilled individual familiar with the design of devices in the industry."[7] The Court of Appeals

7. The Petition's assertion (Petition, pp. 9-10) that *Systematic Tool* is not consistent with *Universal Athletic Sales Co. v. American Gym, Recreational & Athletic Equip. Corp.*, 546 F. 2d 530 (3d Cir. 1976), *cert. denied*, 430 U. S. 984 (1977) is incorrect and is not

found the District Court's analysis erroneous in that it misconstrued the word "design" and assumed that only a person knowledgeable in the construction of a concrete mixing truck from the ground up could evaluate the obviousness of the Willard Patent. As a result of its mistaken definition of the level of ordinary skill in the pertinent art, the District Court discounted the testimony of Richard Essex, one of Mack's experts, on the ground that he was not a designer of transit concrete mixer trucks. (459 F. Supp. at 1212; App. A-33.)

As established at trial, Essex's qualifications as an expert were considerable. He was a graduate civil engineer who had used transit concrete mixers and had been in the ready-mix concrete business since 1933. During this time, he was responsible for a fleet of 28 trucks. As such, Mr. Essex purchased truck chassis and mixer drums separately from different companies. He properly matched the chassis and mixer drums and made other engineering decisions relevant to selecting such components. Also, he supervised the mechanics who put the mixers and chassis together. (Jt. App. 2459-74A.) From his intimate involvement in the concrete business, he had knowledge of the prior art and the advantages of the different types of mixers. (Jt. App. 2479-89A.)

7. (Cont'd.)
what the Court of Appeals said in its opinion in this case. Rather, the Court of Appeals merely observed that determining the person with ordinary skill in the pertinent art is difficult, as demonstrated by the two referenced decisions. What these two decisions demonstrate is that the question of who has ordinary skill in the pertinent art must be decided on the basis of the nature of the particular patent at issue. In both cases, the Court of Appeals evaluated the degree of difficulty of the subject matter of the patent in determining the standard by which to judge obviousness. In this case, the Court of Appeals held that the degree of difficulty in a combination patent, where all elements exist in the prior art and function as they did in the prior art, is not high, and that the standard must be set with this in mind.

The Court of Appeals correctly recognized that assembling major components of the concrete mixer in a different way was the essence of the Willard Patent. Additionally, the Court of Appeals recognized that the Willard Patent did not involve detailed mixer design such as the design of a transmission or the design of drum internals. In fact, Mr. Fay, Sims' witness, admitted this:

> Q. Now, is it your testimony that by looking at Willard one can construct a front-discharge mixer?
>
> A. No. I think there are some other aspects.
>
> Q. It takes a good bit of work to design a working vehicle, doesn't it?
>
> A. Yes.
>
> Q. In fact, isn't that one reason that you went out to Salt Lake City in 1964 to see how Mr. Sims did it?
>
> A. Indeed.
>
> Q. Indeed, aren't you also aware that it took Mr. Sims a long time to come up with a working vehicle even though Willard was available?
>
> A. Yes.

(Jt. App. 2695A.) The fact is that the Willard Patent teaches not the design or construction of a truck but merely the arrangement of the major component parts.[8] The District Court's restriction of hypothetical persons with ordinary skill in the pertinent art to truck designers therefore was manifestly erroneous.

In discussing the level of ordinary skill in the pertinent art, the Petition fails to point to any legitimate reason why this Court should review this case. Although the Petition

8. Mr. Essex testified that there was nothing in the Willard Patent or the Payne Patent which he could not understand because of its technical nature. (Jt. App. 2490A, 2511A.)

contends, at pages 8-9, that there is confusion among the Circuit Courts, it fails to state clearly what the confusion is, or whether the alleged confusion involves the issue presented in *Graham* of the level of ordinary skill in the pertinent art. Except for the Third Circuit cases discussed above in footnote 7, Petitioner cites (Petition, p. 9) only two cases, *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F. 2d 963 (7th Cir. 1979) and *Herschensohn v. Hoffman*, 593 F. 2d 893 (9th Cir.), *cert. denied*, 100 S. Ct. 84 (1979), for the proposition that there is confusion among the Circuit Courts. However, neither of these cases even deals with the issue raised here—the level of ordinary skill in the pertinent art. Rather, both cases relate to the requirement of synergism which, as will be seen below, was not addressed by the Court of Appeals' opinion. In *Republic Industries*, the Seventh Circuit noted that synergism is not required in a combination patent and that the three-pronged test of *Graham* should be applied to determine patent validity under 35 U. S. C. § 103. 592 F. 2d at 969. Application of the *Graham* test in that case resulted in *invalidating* the patent for obviousness. Likewise, in *Herschensohn*, the Ninth Circuit addressed the issue of synergism, not the level of skill in the pertinent art. The Court there held that synergism was required in a combination patent and that the patent at issue was obvious because it did not produce any new, unusual, or synergistic result. 593 F. 2d at 897.

The Petition spends two pages (Petition, pp. 11-12) discussing *United States v. Adams*, 383 U. S. 39 (1966). However, as in the other cases cited by Sims, *Republic Industries* and *Herschensohn*, the issue of the level of ordinary skill in the pertinent art was not discussed. Nor was *Adams* a combination patent case in which all of the prior art elements performed the same function as in the

prior art. In *Adams*, the fact that the prior art elements functioned differently, or as in this Court's assessment, the fact that they had "an interdependent functional relationship," made the patent valid and the invention non-obvious. 383 U. S. at 50. Accordingly, Sims' discussion of *Adams* is inapposite to the present case.

II. The Court of Appeals Did Not Hold That Synergism Is Required in Combination Patent Cases.

The second question presented by the Petition is stated as whether "synergism" is a new, independent and cumulative requirement for the patentability of combination mechanical inventions under 35 U. S. C. § 103. (Petition, p. 2.) The Petition then refers to what it claims to be a division among the Circuit Courts on this question. (Petition, p. 15.) However, the Petition fails to recognize that the Court of Appeals did not even reach the synergism issue in this case:

> In view of our holding that the patent at issue fails to meet the test for obviousness set down by Graham, we need not rule on the question whether a finding of synergism is a precondition to validity in all such cases.

(608 F. 2d at 93; App. A-12.) (Footnote omitted.) Thus, the synergism issue is totally irrelevant to the issues raised by the Court of Appeals' decision.

CONCLUSION.

Because the decision of the United States Court of Appeals for the Third Circuit was correct and because no special or important issues warrant this Court's review, Respondent Mack Trucks, Inc. respectfully requests that the Petition for a Writ of Certiorari be denied.

Respectfully submitted,

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